FAIR MARKET VALUE ANALYSIS
FOR A FIBER OPTIC CABLE PERMIT
IN
NATIONAL MARINE SANCTURARIES

Supporting Documentation

Tabs 1 - 22

Submarine network deployment continues unabated

With demand still increasing, there are trends, opportunities, and threats currently facing the participants in this dynamic high-risk industry.

JULIAN RAWLE, Pioneer Consulting

The submarine cable installation and maintenance market is experiencing a period of unprecedented growth. And yet, one of the key features of this market is that margins at all levels are being squeezed.

Of course, the Internet is the underlying driver of demand for new international capacity. That, in itself, is producing some interesting dynamics. The rate of growth in user penetration in the United States and Europe is slowing. At the same time, many governments in the Asia-Pacific region are now developing strategies to develop their country's information-technology (IT) capability and encourage Internet take-up. Figure 1 shows how that has led to the industry's focus shifting from the Atlantic to the Pacific.

Nevertheless, the Atlantic market is far from mature. In early January, Cable & Wireless (C&W-London), traditionally conservative in its global network development, announced Apollo. This "son of Gemini" will be the first 80-wavelength (3.2-Tbit/sec) transatlantic system when it's brought into service in the second quarter of 2002. C&W has avoided some of the risk by obtaining system-supplier financing and gaining some provisional pre-sales commitments. But that still represents a vote of confidence in continued transatlantic Internet traffic growth.

There are other drivers for growth. Deregulation in many parts of the world has led to the creation of "new carriers." These companies are challenging the old paradigms by building private systems that offer the customer greater flexibility in pricing and service. National self-interest, particularly in countries where deregulation of the telecommunications sectors has yet to be fully implemented, also leads governments and incumbent operators to make a play in this arena.

Then there is the special breed of new carrier-building truly global networks. Where Project Oxygen failed, others have still dared to tread. The key, of course, has been to arrange a strong financing package at the front end of the project. That generally consists of equity, high-yield debt, and pre-sales. With the financing in place, FLAG, Global Crossing, Level 3, and 360networks have been able to embark on extended rollout programs.

That also gives their suppliers confidence for their own planning cycles. Other companies, such as Teleglobe, Verizon, and Primus, go for a mixed bag of cable ownership and capacity leasing. The common thread, however, is that all these companies have a vision of providing their customers with ubiquitous, high-quality service.

As for the "private cable versus consortium" approach to cable system deployment, the jury is still out. None of the above-mentioned new global carriers has returned a profit to their shareholders yet, and their stock prices have taken a battering in the last 12 months.

Much has been made of a looming "capacity glut." True, capacity prices have fallen dramatically in the last five years and will continue to do so for the foreseeable future. But this decrease has been mainly due to technological improvements and deregulation, rather than the number of routes available between countries or continents. The recent break on the China-U.S. Cable brought Asia-based Websites almost to a standstill, which only serves to highlight that peak-time demand and supply on key routes are still not in balance.

Investment in intercontinental systems

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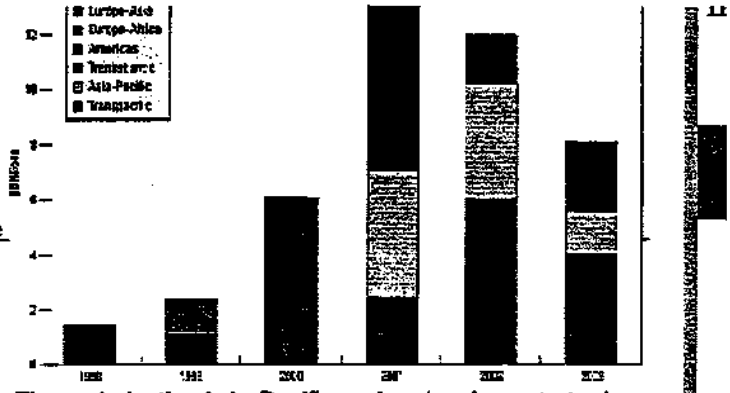

Figure 1. As the Asia-Pacific region develops strategies for upgrading telecommunications, the undersea optical-cable industry's focus is making a shift from the Atlantic to the Pacific.

Lead times for development of major international cable systems have been drastically shortened. The average long-haul cable project, from initial announcement to "ready for service" (RFS), now takes less than 18 months, making life harder for the forecaster. With shorter planning horizons, there is a tendency for medium-term forecasts to suffer from "planner's droop."

Figure 1 shows investment in all cable systems that have been announced. Years 2001 and 2002 are robust forecasts based on known RFS dates, and 2003 consists of projects that are still in the formulation stage. Pioneer Consulting believes that there is considerable upside potential to 2003 and beyond, as new projects are announced in the second half of 2001 and into early 2002. By this time, the current jitters in the financial community over "tech stocks" will have stabilized and financing should be available.

The period 2000-01 has seen unprecedented activity, particularly in the Asia-Pacific region, placing a strain on the supply chain. Cable manufacturers have increased production to 200,000 km per year. However, much to the consternation of their customers, they remain cautious about making any large investments in production capacity. Perversely, that has helped the supply and demand imbalance by causing significant delays in the development of proposed intercontinental systems. It has also led to some interesting negotiations between those system suppliers that own cable manufacturing capacity and those who do not.

Pioneer predicts that over the next five years, there will be structural changes in the ownership of the world's cable-producing facilities that will address the current supply and demand imbalance. That could take the form of downward or upward vertical integration. Alternatively, change could come through the entrance of new players.

System-supply market outlook

Systems suppliers' strategies have diverged significantly in the last three years. Figure 2 shows some of the major supplier contract values for intercontinental systems from 1998 to 2001. Tyco set up its own global operator, Tycom, which is using Tyco facilities to build and maintain its own global network. At the same time, Tyco must somehow manage the real conflict of interest with its traditional customers, the international carriers. Tyco has also been responsible for shaking up the maintenance market with its private Seahorse service offering.

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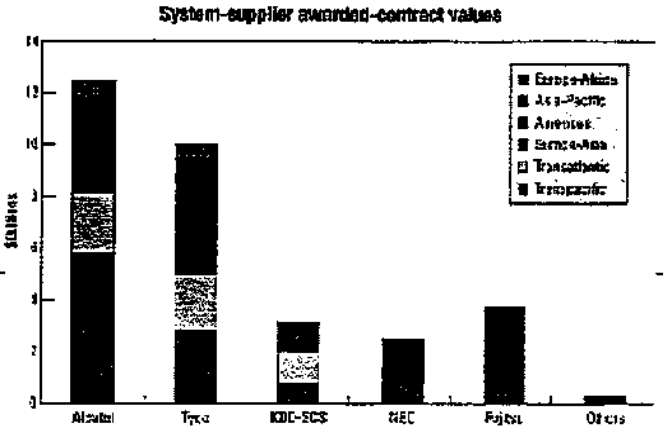

Figure 2. Alcatel and Tyco are the leaders when it comes to major system-supplier intercontinental-system awarded-contract values.

Both Tyco and recently Alcatel have been willing to get involved in equity deals to win installation project business. It remains to be seen whether a portfolio of disparate telecom holdings is ultimately of benefit to these companies. Tyco and Alcatel have also seized opportunities to purchase marine installers. In Tyco's case, the purchase of Temasa was a strategic move in its partnership with Telefónica to develop South America. Alcatel's purchase of Telecom Denmark's fleet and commissioning of four new vessels were aggressive steps into the marine installation market to gain control of what the company perceives to be a scarce key resource.

In contrast, the Japanese system suppliers have remained relatively stable. NEC stunned the market in 2000 by winning bids for AJC, APCN-2, and EAC Phase 2, with prices well below market level. Having won these contracts and committed to certain time frames, NEC discovered that both cable manufacturing capacity and marine installation vessels were in short supply. This situation threatened the profitability of these deals and led to a non-exclusive strategic alliance between NEC, as turnkey system supplier; OCC, a key Japanese submarine cable manufacturer; and Global Marine Systems Ltd., the market leader in marine installation and maintenance of submarine fiber-optic cables. Pioneer foresees this dynamic of industry consolidation continuing.

KDD-SCS made its first foray into Atlantic waters with TAT-14. Technological and landing rights issues have caused the original RFS date to slip. The company has also led Global Crossing's EAC Phase 1 and must be disappointed not to have won Phase 2. Question marks remain, however, over the commercial sense of the relationship with its parent company. This issue is understood to have been central in the recent resignation of KDD-SCS's president.

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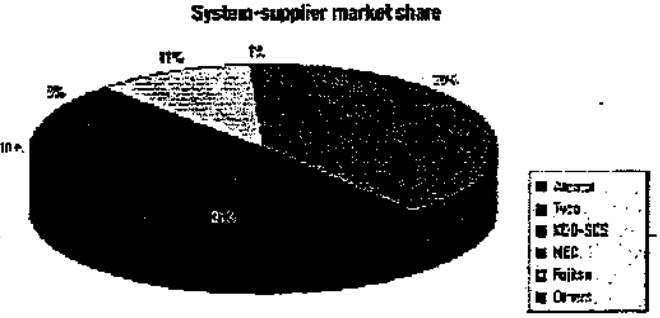

Figure 3. The market shares for undersea cable systems are dominated by Alcatel and Tyco, with the rest of the suppliers comprising less than one-third market share.

Fujitsu benefits from their strong relationship with Alcatel. It led the SEA-ME-WE-3 project, commissioned in 1999, and they recently won the race for NAVA-1. Rumors of the formation of a "Japan Inc." conglomerate system supplier continue to surface from time to time, but there is no outward indication that this rumor is anything but talk. Figure 3 shows the market shares of some of the leading undersea cable suppliers.

Pirelli continues to contribute to the world's supply of cable and Siemens/ NSW has been active in a number of smaller regional projects. However, neither of these suppliers has the scale or resources to challenge its larger competitors for the big projects. Nortel Networks is rumored to be interested in returning to the submarine sector.

Similarly, at the bottom of the food chain, the marine installers are most concerned about the demand-supply balance. The explosion in the number of submarine cable projects and the relatively good margins available have encouraged new entrants with new or converted vessels. At the same time, the traditional players have also increased the size of their fleets. Currently, there is a shortage of tonnage, but by 2003, Pioneer predicts that the market for submarine cable installation and maintenance vessels will be in balance.

Future focus

Pioneer foresees continued healthy demand for submarine cable systems into 2005. Asia-Pacific will be the most active area from 2001 to 2003, but will suffer some constraints due to the varied levels of economic and technological development within the region. Traditional landing points such as Singapore and Hong Kong will quickly become congested, presenting new challenges for both cable installers and maintainers. Western operators, hoping to build-out their global network through the Asia-Pacific region, will also incur some pain in overcoming cultural differences.

South America, driven by the demand for connectivity to the United States, will also develop quickly in this period, although governments' commitments to raising Internet penetration have yet to be proven.

AJC and Nava-1 have catalyzed interest in the Australian market. But doubts remain over the likely bandwidth demand from a limited population. On the other hand, Telstra has embarked on an aggressive regional strategy that has seen a potentially bandwidth-hungry tie-up with PCCW in Hong Kong. PCCW recently has had financial difficulties due to the collapse in its share price, and Telstra has had to deal with grumblings from its shareholders.

Nevertheless, the new joint venture Inter net Protocol (IP) backbone operator, "Reach," has been established.

India appears to be coming up very fast on the rails. With deregulation beginning and a cheap well-trained IT workforce already telecommuting to Silicon Valley, it is no surprise that two major international projects already have been announced.

Of course, everyone talks about China and its huge potential. The first wave of inward telecom investment was generally unsuccessful, but China's entry into the World Trade Organization gives cause for optimism. China Telecom continues to be a major player in the various consortia cables in the region and jealously guards Chinese landing rights. Pioneer believes that Asia-American Network (China-US 2) will happen, but it may not be in the traditional consortium format.

Africa remains at the bottom of the investment league table. The completion of SAFE (RFS March 2002) will provide the first high-bandwidth international connectivity to the continent. Africa ONE would further bring the region into the global community as well as improve intra-regional communications.

Margin pressure

This bright outlook of activity in almost every part of the globe is not to say that subsea network deployment and operation is a risk-free proposition. Increased competition from global deregulation and the unilateral action of the Federal Communication Commission has eroded international carriers' margins. That has caused them to put extreme pressure on the system suppliers and their subcontractors.

System installation costs and lead times have been drastically reduced. Carriers are seeking to reap the benefits of the current technology before the next generation makes their system obsolete. Delays in implementing systems represent huge revenue losses for carriers. Appropriate liquidated damages therefore are imposed on the system suppliers to encourage effective project management and on-time delivery.

Effect on system security

Installers are constantly seeking innovative and cost-effective methods of installing cable, inevitably leading to questions about the resilience of these major systems. There have been numerous well-publicized incidents of newly installed cables going down. In some cases, that has even led to lawsuits by the cable owner against the supplier that installed the system.

Indeed, Pioneer predicts the international submarine cable maintenance sector, so long the

Cinderella of the industry, is going to be brought much more into the spotlight. Carriers will increasingly demand improvements in cable reliability and repair intervals. That will require new technological developments in fault-location and diagnostic systems. It may also encourage system suppliers to seek new ways of minimizing the amount of vulnerable system technology that has to go under the water.

About 80% of long-haul cable faults occur in relatively shallow water. The main causes are damage from fishing gear and anchors. Burial of cable has become increasingly necessary in these areas and the average burial depth has steadily increased. Where required, cables are now buried beneath the sea bed to a depth of at least 1 m. In some areas, such as in the approaches to key East Asian hubs, some cables are being buried to depths of more than 5 m. That requires the use of expensive specialist burial tools and is an extremely lengthy process.

Another major incidence of cable faults occurs at the optical repeaters and branching units in a system. Current technology requires repeaters in a long-haul system to be installed every 40-70 km. These units are highly sophisticated pieces of equipment, which are designed to work under extreme water pressure and can cost between $500,000 and $1 million. Production faults, poor-quality splicing of the unit into the cable, and mishandling during the laying of the system can all result in significant repair costs.

Although encased in a series of protective claddings, the fiber-optic cable itself is also vulnerable. Poor handling during loading or laying and inaccurate laying of the cable on the undulating sea bed can lead to unacceptable fiber loss. When a fault occurs on a working system, it often takes time to locate the fault, mobilize a repair vessel, and install a replacement unit or cable section. In the meantime, it costs the carrier literally millions of dollars a minute in terms of lost or rerouted traffic.

Technology as a driver

Who could have imagined even five years ago the forward leaps the industry has made in terms of getting more bytes down a pipe? Research is currently focused on cramming more wavelengths at higher bit rates down the same fiber-optic pipe. But the boundaries of this development are finite. According to Bell Labs, "If the explosion in bandwidth continues on its current course of doubling every year, this capacity [50 THz, the region of optical transparency of silica fiber where the attenuation is sufficiently low for long-haul transmission] will be reached in only eight to 10 years."

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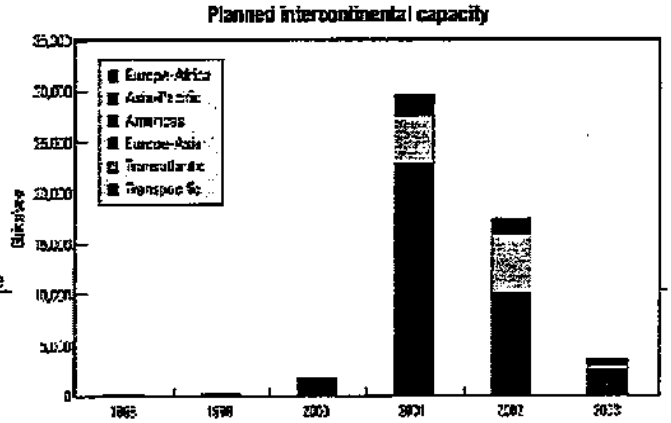

Figure 4. DWDM technology dramatically impacted the industry since 1999, making pre-1999 systems virtually obsolete while sparking the market to build new and better undersea cable systems.

SONET/SDH remains the preferred architecture for international submarine networks, and the reasons are clear. It is a well-understood technology that is cost-effective. Moreover, it has the capability to allow carriers to migrate their voice traffic to IP and still provide the quality of service demanded by customers.

Figure 4 shows the dramatic impact on the market made by DWDM. Systems laid down in 1998-99 that were designed to provide enough capacity for at least 10 years, have become obsolete overnight. DWDM also brings scalability and route portability to the carrier's marketing mix.

The big picture

At the global level, Pioneer foresees increasing competition driving down margins and requiring economies of scale to survive. Access to the latest technology will be critical. That's where the strategies of two of the larger system suppliers pose a considerable threat to the market equilibrium. Tyco has moved into the carrier market with its own planned Tycom Global Network. Alcatel has moved down the supply chain into installation and maintenance. Both have shown an increased willingness to take equity stakes in new systems and partner with carriers.

This strategy must ultimately create a conflict of interest when supplying customers that own competing systems. Is there a day coming when these two suppliers of over 65% of the market begin to restrict access to their latest technology to only affiliated cable owners? That would certainly cause a tremendous shake-up in the industry and could potentially put the Japanese suppliers back in the driver's seat. Whatever the outcome of this current dynamic, Pioneer believes there is great potential for vertical integration and consolidation at the system-supplier and marine-installer/maintainer levels.

At the carrier level, the industry is fragmenting into specialist service providers that use the latest technology, particularly in the last mile, to differentiate their offerings. They are a major threat to the traditional public-network operators, but that is unlikely to adversely affect demand for new long-haul cable systems. However, the "mini-consortium" is likely to be the most favored commercial structure for such systems, because it shares the risk without compromising time-to-market.

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Undersea fiber business thrives on today's demand for global connectivity

By ROBERT PEASE

The economic rule-of-thumb for most markets is that as prices decrease, demand increases. When prices increase, demand tends to decline, each a direct result of the other. So what happens when the rule is broken by explosive demands and decreasing prices that seem to have little or no effect on each other? Basically, you'll have one very healthy market. Such appears to be the case with the undersea fiber-optic cable market, a segment of the telecommunications industry that is flourishing, according to two industry forecast and analysis firms.

TRENDS

Pioneer Consulting in Cambridge, MA, and Newport, RI-based KMI Corp. publish annual forecasts for the undersea fiber-optic cable markets. (*Lightwave*'s parent company, PennWell, also owns KMI.) According to both 1999 forecasts, submarine cable deployment is flourishing and is expected to continue to enjoy prosperity for the foreseeable future.

"We forecast a compound annual growth rate [CAGR] of transoceanic demand of more than 100% from 1999 to 2004," says Michael Ruddy, senior analyst at Pioneer. "There will be much higher levels of spending on submarine cable in the near future because of today's increased demand. There will be at least 15 new transoceanic systems, each

continued on page 3

Optical laser-communications systems carve niche in metro markets

By ROBERT PEASE

As more bandwidth capacity becomes necessary in crowded metropolitan business centers and for use in premise and local area networks (LANs), more network operators are considering free-space optical communications as a less-expensive alternative to deploying fiber. Coupled with improvements in speed and distance capabilities, these systems offer a newly useful communications alternative.

TECHNOLOGY

The degree to which free-space systems have progressed became apparent with the recent debut of dense wavelength-division multiplexing (DWDM) technology for

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'Breakthrough technologies' to make MONET fully optical network

By ROBERT PEASE

The multiwavelength optical-networking (MONET) consortium is putting the finishing touches on an experimental research network in Washington, DC, that links six government agencies. The latest upgrade provides what the consortium describes as "breakthrough technologies" that add flexibility, expand the transmission capacity, and transform the network from a point-to-point optical system to a fully optical network.

TECHNOLOGY

The Advanced Technology Demonstration network, or ATDnet, can carry a mixture of telecommunications traffic, including voice, data, and high-definition television (HDTV), simultaneously on various wavelengths. The ATDnet consists of

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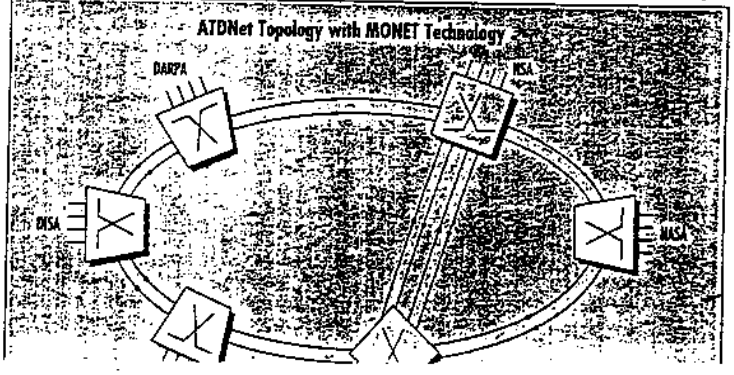

kRoad on track to initiate field tests

THLEEN RICHARDS

:Road Inc., a San Diego startup that eated a significant commotion with : Wall Street launch last November, ld testing its first com- al products. After gener- intense interest and some skepti- concerning its bidirectional, :-laser transmission technology— ı SilkRoad claims will increase vidth capacity over a single wave- ı—the company announced in late arly August three optical lines based on its patented tive synchronization communica- SRSC) technology.

eduled to become commercially ble in the fourth quarter, the entry-level optical transceivers in SilkRoad's Emissary 1000 and Pathfinder 2000 product lines target telecommunications and cable-TV providers offering analog and digital voice, video, and data services in the enterprise and metropolitan-area markets.

TECHNOLOGY

Meanwhile, the Ambassador 3000 optical transceiver line for long-haul, carrier-grade networks, although announced, is not expected on the market for at least another year. "It involves significantly more testing in terms of carrier-grade qualification in the field," says Bob Freeman, vice president of operations at SilkRoad. "As a small company, we put our resources into launching our technol-

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ndersea fiber business thrives on today's demand for global connectivity

inued from page 1

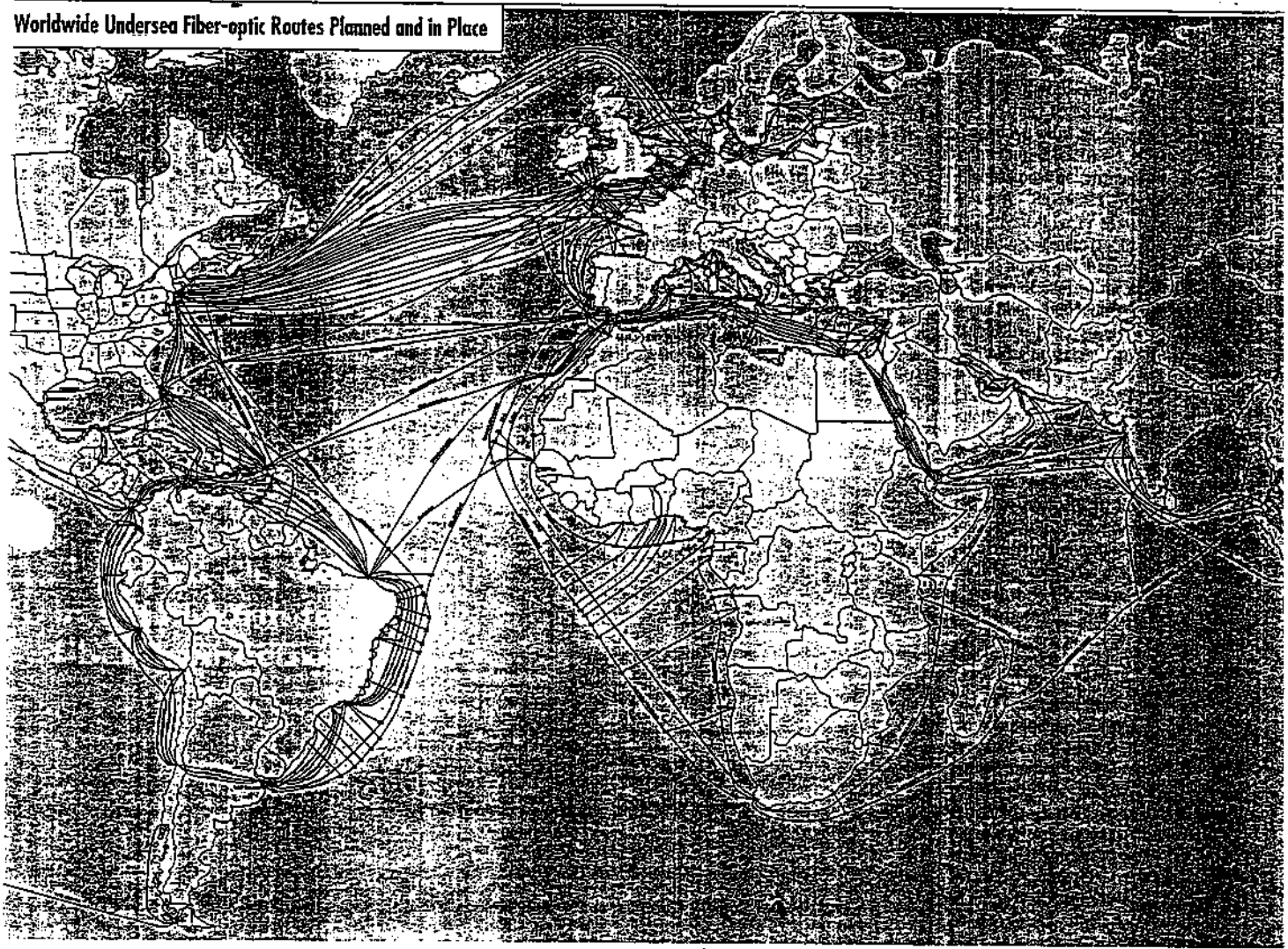
" than 8000 km, entering service
1 now and the beginning of

Despite the huge demands for capaci- prices may also be dropping due to : impact of evolving technologies. nse wavelength-division multiplexing WDM) has made a huge impact on the deployment of undersea cable systems, and continues to reduce the cost per bit.

"Even though the DWDM systems are more expensive right now because of the high costs of equipment, you get much more capacity than the cost per bit is falling," says Stacey Yates, KMI's senior analyst for the submarine cable industry. "That means circuit prices can also fall, resulting in a lot more available capacity. As a result, we'll likely see even more increase in demand."

The demand for global connectivity being generated by data, the Internet, and new technologies that improve communications in terms of quality and pricing, is prompting undersea cable-industry players to roll up their sleeves and get busy. According to both reports, the huge demand is responsible for planned investments in undersea cable systems of around $30 billion over the next five or six years. KMI's assessment is based on systems that have been announced to date (see Figure). Pioneer bases its similar findings on a

Worldwide Undersea Fiber-optic Routes Planned and in Place



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ombination of likely systems, and what apacity demand can support.

"The $30 billion investment equates about 670,000 route kilometers of " says Yates. "This can be further down into 258,000 route kilo- ters in the Pacific Ocean and 07,000 in the Atlantic. The Atlantic ortion wasn't that big until the last x systems were announced, causing ie Atlantic market to spike impres- vely."

By comparison, in 1998 worldwide undersea fiber deployment was only 400,000 route kilometers over a 12-year period, worth about $17 billion. The forecasted six-year market is expected to be almost twice the historical 12-year market—twice the size in half the time. In terms of actual fiber, Pioneer forecasts that 5 million fiber kilometers will be placed under the sea from 1999 to 2004.

"This compares to a cumulative total of just over 2 million fiber kilometers deployed by the end of 1998," says Ruddy. "The market for submarine fiber is fueled not only by the increasing deployment of new cable systems, but also by higher fiber counts, particularly in regional, unrepeatered systems. Most submarine cable operators opt to have their cables installed with the highest number of fiber pairs possible, since the cost of the fiber is so small relative to the overall system cost."

Through 1999, about 3.8 million fiber kilometers will be installed, with another 3.9 million already announced for deployment through 2003...and a strong likelihood of more new system announcements. Actual production capacity for undersea fiber is currently estimated by KMI to be 190,000 route kilometers per year, and forecast to increase to about 210,000 route kilometers by the end of 199.

Where it's headed

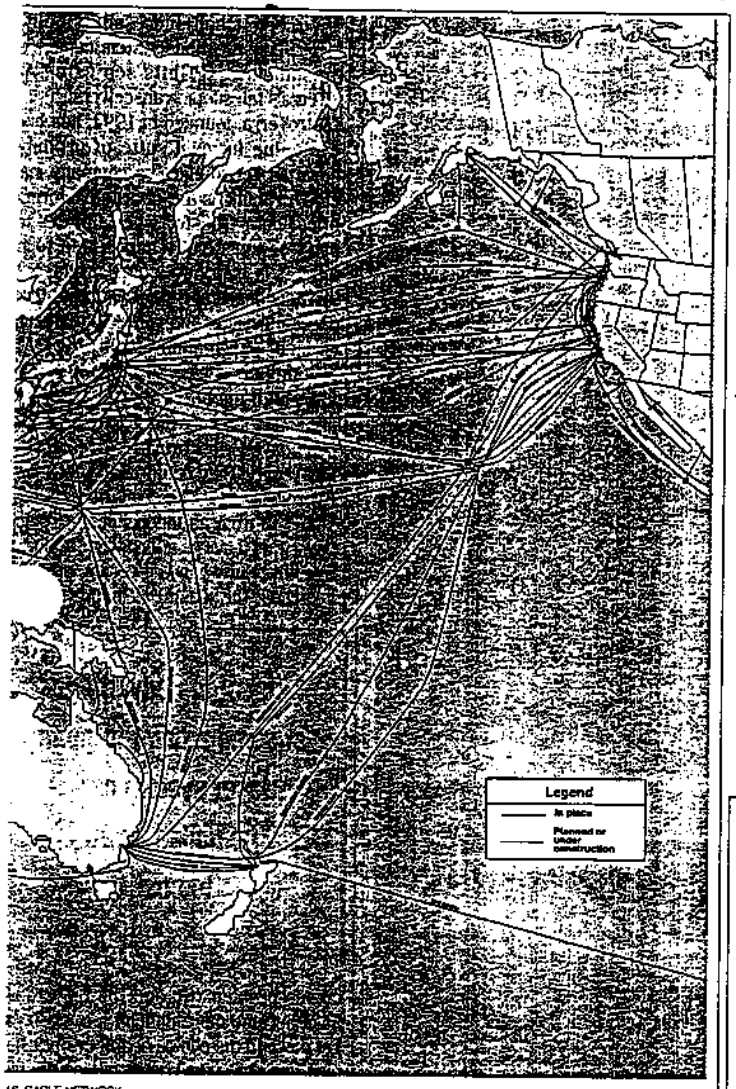
Geographically, both reports indicate the bulk of new undersea fiber-optic cables will continue to be deployed in transatlantic and transpacific routes. According to KMI, the transpacific market edges out the transatlantic in terms of planned route kilometers, particularly for serving the west coasts of the United States and South America, along with a growing market in Southeast Asia.

Several previously under-served markets are being eyed by investors as potential candidates for new undersea cables for several reasons. Having witnessed the increasing popularity of the transatlantic and transpacific routes, some investors are seeking out new opportunities in other areas. Links between North and South America, for example, are on the increase with several major systems entering service over the next two years (see *Lightwave*, July 1999, page 27). Pioneer's Ruddy points out, however, that it could be difficult to justify the increased investment in these systems without increased investment by domestic carriers in Latin America in broadband access technologies. KMI's Yates agrees that Latin America is on the right track.

"Latin America is definitely one market that's on the radar screen as 'up and coming,'" says Yates. "There are lots of new systems going in these areas, such as SAM-1, MARCOS-1, SAC, and transatlantic systems that go into South America, like Columbus-3, Atlantis-2, MAYA ARCOS-1 and several festooning systems. So that under-served region is about to be served."

Africa is also slated to receive a major capacity boost over the next few years, although there is a lot more speculation regarding the current need for two recent projects serving the continent. The Africa-One system will ring the African continent, promising global connectivity to "every African country" via a link with the Global Crossing system (see *Lightwave*, August 1999, page 1). However, some analysts believe that in light of another similar system—SAT-3/WASC/SAFE—it may be too much too soon.

Still, when a continent that lacks basic quality telephone service in some of its still-developing countries is targeted for telecommunications connectivity in the form of expensive undersea networking, one has to wonder if the submarine cable market has yet to reach its peak. □



As this map shows, the oceans of the world are becoming crowded with fiber-optic cable. Nevertheless, even more systems will be installed over the next few years. (Map © 1999 KMI Corp., Newport, RI, (401) 849-6771.) KMI updates this map quarterly. This is the August 1999 (latest) update to the map.

.IS CABLE NETWORK
WEST - GW
ND -5
.SLAND FIBERNET
.IS CABLE NETWORK
.AN (landing points tbd)
ALAND
PACIFIC CABLE - NPC
STAR CABLE
CROSSING-1
EAST
WEST
ERICAN CABLE
ERICAN CROSSING
Y ONE
AMERICA CROSSING
ERN CROSS
-2 and -3
A (landing points tbd)
4, & -5
UTH
OAST FOTS SYSTEM
DIAN OCEAN

ADEN - DJIBOUTI
AFRICA-ONE
EAST AFRICA CABLE
FIBER OPTIC GULF (FOG)
FLAG
JALMALA FESTOONS
OMAN DOMESTIC
PAKISTAN-UAE - 2
PROJECT OXYGEN
QATAR - UAE
SAFE/SAT3-WASC
SEA-ME-WE-2
SEA-ME-WE-3
UAE - IRAN
NORTHERN EUROPE (continued)
MANX-1
MCIWORLDCOM
NETHERLANDS-TER-

SCHILLING
NORDIC
NTL
ODIN
PANGEA-1 (PG1)
PORT MORA-DONAGHADEE-BELFAST
PROJECT OXYGEN
REMBRANDT
RIOJA
SCOTLAND-NO. IRELAND-1 & -2
SEA-ME-WE-3
SIRIUS
SOLAS
SPAIN-NETHERLANDS
SWANSEA-BREAN
SWEDEN-ESTONIA - SWE
SWEDEN-FINLAND

SWEDEN-LATVIA - SL
TAGIDE-2 - TG2
TAT-10
U.K. - BELGIUM-5 & -6
U.K. - DENMARK-4
U.K. - FRANCE-3, -4, & -5
U.K. - GERMANY-5 & -6
U.K. - ISLE OF WIGHT
U.K. - NETHERLANDS-12 & -14
U.K. - NORTHERN IRELAND-1 & -2
U.K. - SPAIN-4

Circular No. A-25
Revised

(Transmittal Memorandum No. 1)

MEMORANDUM FOR HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: User charges

1. **Purpose:** The Circular establishes Federal policy regarding fees assessed for Government services and for sale or use of Government goods or resources. It provides information on the scope and types of activities subject to user charges and on the basis upon which user charges are to be set. Finally, it provides guidance for agency implementation of charges and the disposition of collections.

2. **Rescission:** This rescinds Office of Management and Budget Circular No. A-25, dated September 23, 1959, and Transmittal Memoranda 1 and 2.

3. **Authority:** Title V of the Independent Offices Appropriations Act of 1952 (31 U.S.C. 9701); 31 U.S.C. 1111; and Executive Orders No. 8248 and No. 11,541.

4. **Coverage:**

a. The provisions of this Circular cover all Federal activities that convey special benefits to recipients beyond those accruing to the general public. The Circular does not apply to the activities of the legislative and judicial branches of Government, or to mixed-ownership Government corporations, as defined in 31 U.S.C. 9701.

b. The provisions of the Circular shall be applied by agencies in their assessment of user charges under the IOAA. In addition, this Circular provides guidance to agencies regarding their assessment of user charges under other statutes. This guidance is intended to be applied only to the extent permitted by law. Thus, where a statute prohibits the assessment of a user charge on a service or addresses an aspect of the user charge (e.g., who pays the charge; how much is the charge; where collections are deposited), the statute shall take precedence over the

Circular. In such cases (e.g., sale or disposal under Federal surplus property statutes; or fringe benefits for military personnel and civilian employees), the guidance provided by the Circular would apply to the extent that it is not inconsistent with the statute. The same analysis would apply with regard to executive orders that address user charges.

c. In any case where an Office of Management and Budget circular provides guidance concerning a specific user charge area, the guidance of that circular shall be deemed to meet the requirements of this Circular. Examples of such guidance include the following: OMB Circular No. A-45, concerning charges for rental quarters; OMB Circular No. A-130, concerning management of Federal information resources; and OMB Circular No. A-97, concerning provision of specialized technical services to State and Local governments.

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5. **Objectives:** It is the objective of the United States Government to:

a. ensure that each service, sale, or use of Government goods or resources provided by an agency to specific recipients be self-sustaining;

b. promote efficient allocation of the Nation's resources by establishing charges for special benefits provided to the recipient that are at least as great as costs to the Government of providing the special benefits; and

c. allow the private sector to compete with the Government without disadvantage in supplying comparable services, resources, or goods where appropriate.

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6. **General policy:** A user charge, as described below, will be assessed against each identifiable recipient for special benefits derived from Federal activities beyond those received by the general public. When the imposition of user charges is prohibited or restricted by existing law, agencies will review activities periodically and recommend legislative changes when appropriate. Section 7 gives guidance on drafting legislation to implement user charges.

a. Special benefits

1. Determining when special benefits exist. When a service (or privilege) provides special benefits to an identifiable recipient beyond those that accrue to the general public, a charge will be imposed (to recover the full cost to the Federal Government for providing the special benefit, or the market price). For example, a special benefit will be considered to accrue and a user charge will be imposed when a Government service:

(a) enables the beneficiary to obtain more immediate or substantial gains or values (which may or may not be measurable in monetary terms) than those that accrue to the general public (e.g., receiving a patent, insurance, or guarantee provision, or a license to carry on a specific activity or business or various kinds of public land use); or

(b) provides business stability or contributes to public confidence in the business activity of the beneficiary (e.g., insuring deposits in commercial banks); or

(c) is performed at the request of or for the convenience of the recipient, and is beyond the services regularly received by other members of the same industry or

group or by the general public (e.g., receiving a passport, visa, airman's certificate, or a Custom's inspection after regular duty hours).

2. Determining the amount of user charges to assess.

(a) Except as provided in Section 6c, user charges will be sufficient to recover the full cost to the Federal Government (as defined in Section 6d) of providing the service, resource, or good when the Government is acting in its capacity as sovereign.

(b) Except as provided in Section 6c, user charges will be based on market prices (as defined in Section 6d) when the Government, not acting in its capacity as sovereign, is leasing or selling goods or resources, or is providing a service (e.g., leasing space in federally owned buildings). Under these business- type conditions, user charges need not be limited to the recovery of full cost and may yield net revenues.

(c) User charges will be collected in advance of, or simultaneously with, the rendering of services unless appropriations and authority are provided in advance to allow reimbursable services.

(d) Whenever possible, charges should be set as rates rather than fixed dollar amounts in order to adjust for changes in costs to the Government or changes in market prices of the good, resource, or service provided (as defined in Section 6d).

3. In cases where the Government is supplying services, goods, or resources that provide a special benefit to an identifiable recipient and that also provide a benefit to the general public, charges should be set in accordance with paragraph (2) of Section 6a. Therefore, when the public obtains benefits as a necessary consequence of an agency's provision of special benefits to an identifiable recipient (i.e., the public benefits are not independent of, but merely incidental to, the special benefits), an agency need not allocate any costs to the public and should seek to recover from the identifiable recipient either the full cost to the Federal Government of providing the special benefit or the market price, whichever applies.

4. No charge should be made for a service when the identification of the specific beneficiary is obscure, and the service can be considered primarily as benefiting broadly the general public.

b. Charges to the direct recipient. Charges will be made to the direct recipient of the special benefit even though all or part of the special benefits may then be passed to others.

c. Exceptions

1. Agency heads or their designee may make exceptions to the general policy if the provision of a free service is an appropriate courtesy to a foreign government or international organization; or comparable fees are set on a reciprocal basis with a foreign country.

2. Agency heads or their designee may recommend to the Office of Management and Budget that exceptions to the general policy be made when:

   (a) the cost of collecting the fees would represent an unduly large part of the fee for the activity; or

   (b) any other condition exists that, in the opinion of the agency head or his designee, justifies an exception.

3. All exceptions shall be for a period of no more than four years unless renewed by the agency heads or their designee for exceptions granted under Section 6c(1) or the Office of Management and Budget for exceptions granted under Section 6c(2) after a review to determine whether conditions warrant their continuation.

4. Requests for exceptions and extensions under paragraphs (2) and (3) of Section 6c shall be submitted to the Director of the Office of Management and Budget.

d. Determining full cost and market price

1. ''Full cost'' includes all direct and indirect costs to any part of the Federal Government of providing a good, resource, or service. These costs include, but are not limited to, an appropriate share of:

   (a) Direct and indirect personnel costs, including salaries and fringe benefits such as medical insurance and retirement. Retirement costs should include all (funded or unfunded) accrued costs not covered by employee contributions as specified in Circular No. A-11.

   (b) Physical overhead, consulting, and other indirect costs including material and supply costs, utilities, insurance, travel, and rents or imputed rents on land, buildings, and equipment. If imputed rental costs are applied, they should include:

      (i) depreciation of structures and equipment, based on official Internal Revenue Service depreciation guidelines unless better estimates are available; and

      (ii) an annual rate of return (equal to the average long- term Treasury bond rate) on land, structures, equipment and other capital resources used.

   (c) The management and supervisory costs.

   (d) The costs of enforcement, collection, research, establishment of standards, and regulation, including any required environmental impact statements.

   (e) Full cost shall be determined or estimated from the best available records of the agency, and new cost accounting systems need not be established solely for this purpose.

2. "Market price" means the price for a good, resource, or service that is based on competition in open markets, and creates neither a shortage nor a surplus of the good, resource, or service.

(a) When a substantial competitive demand exists for a good, resource, or service, its market price will be determined using commercial practices, for example:

(i) by competitive bidding; or

(ii) by reference to prevailing prices in competitive markets for goods, resources, or services that are the same or similar to those provided by the Government (e.g., campsites or grazing lands in the general vicinity of private ones) with adjustments as appropriate that reflect demand, level of service, and quality of the good or service.

(b) In the absence of substantial competitive demand, market price will be determined by taking into account the prevailing prices for goods, resources, or services that are the same or substantially similar to those provided by the Government, and then adjusting the supply made available and/or price of the good, resource, or service so that there will be neither a shortage nor a surplus (e.g., campsites in remote areas).

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7. **Implementation:**

a. The general policy is that user charges will be instituted through the promulgation of regulations.

b. When there are statutory prohibitions or limitations on charges, legislation to permit charges to be established should be proposed. In general, legislation should seek to remove restraints on user charges and permit their establishment under the guidelines provided in this Circular. When passage of this general authority seems unlikely, more restrictive authority should be sought. The level of charges proposed should be based on the guidelines in Section 6. When necessary, legislation should:

1. define in general terms the services for which charges will be assessed and the pricing mechanism that will be used;

2. specify fees will be collected in advance of, or simultaneously with, the provision of service unless appropriations and authority are provided in advance to allow reimbursable services;

3. specify where collections will be credited (see Section 9). Legislative proposals should not normally specify precise charges. The user charge schedule should be set by regulation. This will allow administrative updating of fees to reflect changing costs and market values. Where it is not considered feasible to collect charges at a level specified in Section 6, charges should be set as close to that level as is practical.

c. Excise taxes are another means of charging specific beneficiaries for the Government

services they receive. New user charges should not be proposed in cases where an excise tax currently finances the Government services that benefit specific individuals. Agencies may consider proposing a new excise tax when it would be significantly cheaper to administer than fees, and the burden of the excise tax would rest almost entirely on the user population (e.g., gasoline tax to finance highway construction). Excise taxes cannot be imposed through administrative action but rather require legislation. Legislation should meet the same criteria as in Section 7b; however, it is necessary to state explicitly the rate of the tax. Agency review of these taxes must be performed periodically and new legislation should be proposed, as appropriate, to update the tax based on changes in cost. Any excise tax proposals must be approved by the Assistant Secretary for Tax Policy at the Department of the Treasury.

d. When developing options to institute user charges administratively, agencies should review all sources of statutory authority in addition to the Independent Offices Appropriations Act that may authorize implementation of such charges.

e. In proposing new charges or modifications to existing ones, managers of other programs that provide special benefits to the same or similar user populations should be consulted. Joint legislative proposals should be made, and joint collection efforts designed to ease the burden on the users should be used, whenever possible.

f. Every effort should be made to keep the costs of collection to a minimum. The principles embodied in Circular No. A-76 (Performance of Commercial Activities) should be considered in designing the collection effort.

g. Legislative proposals must be submitted to the Office of Management and Budget in accordance with the requirements of Circular No. A-19. To ensure the proper placement of user fee initiatives in the budget account structure, agencies are encouraged to discuss proposals with OMB at an early stage of development.

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8. **Agency responsibility:** Agencies are responsible for the initiation and adoption of user charge schedules consistent with the policies in this Circular. Each agency will:

a. Identify the services and activities covered by this Circular;

b. Determine the extent of the special benefits provided;

c. Apply the principles specified in Section 6 in determining full cost or market price, as appropriate;

d. Apply the guidance in Section 7 either to institute charges through the promulgation of regulations or submit legislation as appropriate;

e. Review the user charges for agency programs biennially, to include: (1) assurance that existing charges are adjusted to reflect unanticipated changes in costs or market values; and (2) a review of all other agency programs to determine whether fees should be assessed for Government services or the user of Government goods or services. Agencies should discuss the results of the biennial review of user fees and any resultant proposals in the Chief Financial Officers Annual Report required by the Chief Financial Officers Act of 1990;

f. Ensure that the requirements of OMB Circular No. A- 123 (Internal Control Systems) and appropriate audit standards are applied to collection;

g. Maintain readily accessible records of:

1. the services or activities covered by this Circular;
2. the extent of special benefits provided;
3. the exceptions to the general policy of this Circular;
4. the information used to establish charges and the specific method(s) used to determine them; and
5. the collections from each user charge imposed.
6. Maintain adequate records of the information used to establish charges and provide them upon request to OMB for the evaluation of the schedules and provide data on user charges to OMB in accordance with the requirements in Circular No. A-11.

9. **Disposition of collections:**

a. Unless a statute provides otherwise, user charge collections will be credited to the general fund of the Treasury as miscellaneous receipts, as required by 31 U.S.C. 3302.

b. Legislative proposals to permit the collections to be retained by the agency may be appropriate in certain circumstances. Proposals should meet the guidelines in Section 7b.

Proposals that allow agency retention of collections may be appropriate when a fee is levied in order to finance a service that is intended to be provided on a substantially self-sustaining basis and thus is dependent upon adequate collections.

1. Generally, the authority to use fees credited to an agency's appropriations should be subject to limits set in annual appropriations language. However, it may be appropriate to request exemption from annual appropriations control, if provision of the service is dependent on demand that is irregular or unpredictable (e.g., a fee to reimburse an agency for the cost of overtime pay of inspectors for services performed after regular duty hours).
2. As a normal rule, legislative proposals that permit fees to be credited to accounts should also be consistent with the full-cost recovery guidelines contained in this Circular. Any fees in excess of full- cost recovery and any increase in fees to recover the portion of retirement costs which recoups all (funded or unfunded) accrual costs not covered by employee contributions should be credited to the general fund of the Treasury as miscellaneous receipts.

10. **New activities:** Whenever agencies prepare legislative proposals for new or expanded Federal

activities that would provide special benefits, the policies and criteria set forth in this Circular will apply.

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11. **Inquiries:** For information concerning this Circular, consult the Office of Management and Budget examiner responsible for the agency's budget estimates.

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Grants Management	Financial Management	Procurement Policy
Information & Regulatory Policy	Special Topics

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FIGURE 1 Description of Proposed Right of Way

Section number _____

Location _____ Milepost _____ to Milepost _____

City _____ County _____ State _____

Description --

Land: Length _____ Width _____ Area _____

Utilities _____

Easements _____

Topography _____

Abutting topography _____

Abutting uses _____

Access _____

Zoning _____

Highest and best use

Before the acquisition _____

Remainder after the acquisition _____

Percentage adjustment for quality of title

Shape _____ %

Access _____ %

Topography _____ %

Probable use _____ %

(ATTACH PICTURE)

any. If any of the land to be acquired is used for agriculture or grazing purposes, the water rights of the owner should be stated. Zoning maps and codes should be obtained for any areas where zoning exists.

The appraiser should inspect the land of the proposed right of way, describe in detail each separate ownership of land to be acquired, and record the land to be acquired and the land ownership of which it is a part in complete detail. Figure 1 could be used for this purpose, and a photograph included of each parcel or section to be acquired.

In this example, the appraiser is not being asked to estimate the value of the various parcels to be acquired, but to estimate the price at which this acquisition might be negotiated, exclusive of title expenses, attorney's fees, and the railroad negotiator's time and expenses. In effect, the appraiser will include what might he referred to as "damages to the remainder." Also the client may request a range in price estimates to provide a beginning and ending negotiation figure.

The first step is to estimate the at-the-fence (*ATF*)[1] unit price per acre or square foot of the land to be acquired as a part of the existing ownership. In doing so, the appraiser should consider all the area's recent comparable sales. A complete description of each sale should be recorded and included in the appendix to the report. Each sale's data could be recorded on a form (see figure 2) and a photograph of each sale attached.

In the report narrative, each sale is briefly described, with its unit price related to the parcel to be acquired, and an adjustment is made to each sale-unit price to reflect differences between the comparable and the subject in shape, access, topography, and other aspects.[2] Such an adjustment requires experience and good judgment.

The area of each section of land is then multiplied by the appropriate adjusted *ATF* unit price and an estimate of each section's *ATF* price is made. A summary of all the *ATF* section prices is made and totaled to arrive at the total estimated *ATF* price of the proposed right of way. The next step is to estimate the proposed right of way's probable land price.

To support a reasonable adjustment factor for each estimated *ATF* price, the appraiser should consider the cost of land for other right-of-way assemblies and compare the total price paid with that assembly's total *ATF* price estimated by the railroad's appraiser at that time. No adjustment is necessary for time. The result should be a range in ratios. By considering the motives, needs

1. "At-the-fence" price means the estimated unit price per acre or per square foot of adjoining or nearby land sales, analyzed and adjusted for dissimilarities, weighing the more important factors. Usually the ROW parcels, when acquired, were part of a larger tract of land. Thus the *ATF* price is its value as a part of the larger tract.

2. Charles Seymour and David W. Anderson, "Lessons Learned from Two Decades of Corridor Appraising," *The Appraisal Journal* (April 1997): 179–182.

FIGURE 2 Comparable Land Sales Form

Sale number
Property identification number (PIN)
Location
Use at time of sale
Probable use
Grantor
Grantee
Date of sale
Document number
Property rights
Sales price
Financing terms
Conditions of sale
Market conditions
Location versus subject
Land size and shape
Terrain and timber
Utilities
Zoning
Access
Verified by
Unit sales price

of the railroads, and economic factors, the appraiser can select or estimate the ratio that relates most closely to the client's motives and needs and to local economic factors. Then each *ATF* price estimate is multiplied by the applicable ratio to estimate the probable cost of each section of land for the proposed new right of way. A summary total of the estimation of probable cost is made to estimate the proposed right of way's probable land price.

The example in table 1 establishes a range of acquisition ratios. In the Wyoming purchase, even though the railroad had obtained the right of eminent domain, it paid more than 14 times the *ATF* price because of contracts that the railroad deliver coal at an early date or face a high financial penalty, and because the land was relatively inexpensive range land. Further, the railroad wished to stay on good terms with adjoining ownerships. This sale was discarded as a comparable because of the time pressures involved. In the Chicago purchase, only a strip of land at the outer edge of the right of way was purchased for the extension of a rapid transit passenger line. Because a public agency was the purchaser, the *ATF*-per-acre ratio was lower than in other cases. The other four purchases were within 4.73–6.11 times the *ATF* price. An actual court case in which this data was used ended up with an amount that was five times the appraiser's *ATF*.

ESTIMATING MARKET VALUE FOR CONTINUED USE OF A RIGHT OF WAY

When a right of way is to be acquired for continued use, the preceding method cannot be applied. Presumably the owner, the railroad, either wishes to sell it, another potential user wishes to acquire it, or both. The appraiser and the client need to set the terms of the assignment down in writing. Here, the assignment is to estimate market value, not estimate cost to acquire.

The client should furnish railroad valuation maps, as required by the Surface Transportation Commission. These maps indicate location, width, crossings, bridges, tunnels, etc., together with milepost numbers and engineer's section numbers. (The map scale is usually one inch equals 400 feet although station maps may be one inch equals 200 feet or 100 feet).

As the right of way is assembled and planned to be sold for continued use, the appraiser, upon inspection of the right of way, will section it off based on its zoning or the zoning of adjacent land or, if there is no zoning of either, based on the use of adjoining land. The sections are numbered consecutively the full length of the right of way.

In many rights of way, railroads do not have fee simple title to all of the land. This is particularly true west of the Mississippi River. However, when a sale is made for continued transportation use of a right of way, the grantee usually receives the right to use the land, as did the seller. If the use is to be other than transportation, for example, a hiking trail, the use of sections of land not owned in fee simple may not pass to the grantee.

Federal legislation under the *Rails and Trails Act*[3] permits railroads to convey rights of way, reserving to the railroad the right to reestablish rail use at a future date, which permits continued assembled use. If this type of conveyance is not made, portions of the right of way may revert to prior owners and the continuity of the right of way is disrupted. In such an event, the parcels to which the railroad has fee title are diminished in

3. Chapter 27, *National Trails System Act*, Section 1047, paragraph (d).

As an inducement to expand lines to the West Coast, the federal government once permitted railroads to file a survey of land needed with the Department of the Interior.

value and may possess only liquidation value.

For continued transportation use, an estimate of the total *ATF* price of the right of way is made in the manner described in the preceding method. The adjustment of the total *ATF* price is based on a different set of ratios.

It is generally believed that the adjustment ratio for *ATF* price to market value for the continued use of a right of way is not as great as that for the acquisition of a new right of way because the right of way may not be the most desirable way to get from A to B. Yet, it does connect these points, and also because the owner railroad no longer needs it or desires to sell. On the other hand, it is more valuable for continued use than in liquidation because it exists, is available, and serves the needs of the grantee.

An existing right of way for continued use has greater value than its *ATF* price as part of a larger ownership because, in addition to the *ATF* land value, engineering costs, legal fees, condemnation costs, damages to the remainder, and in some instances, wrecking costs and fill, have all been paid by the owner or a prior owner of the right of way. This is sometimes referred to as assemblage value.

To establish an adjustment ratio to adjust the *ATF* price of the right of way using this method, the appraiser obtains sales data of existing rights of way and compares the sales price of the land to the total *ATF* price as estimated by the seller's appraiser. Dividing the sales price by the *ATF* price will establish the ratio (see table 2).

It is important to note that a sales price including improvements will be obtained, that the portion of the price assigned to the improvements must be deducted from the sales price, and that the sales price of the land only should be utilized. The selling railroad can supply the improvement figure.

The appraiser can select the most appropriate ratio after considering the motives of the parties, the transaction, and the economic factors. There are a number of continuous uses of railroad rights of way. An underground fiber optic cable is one example, and usually involves the outside 10 feet of a right of way with occasional wider areas for relay stations. The right of way is also likely to continue to be for transportation use. The general assignment is to estimate the probable rental, which may be for 10 to 20 years, renewable or nonrenewable, and with rent paid in advance or annually. Data concerning previously made transactions can be obtained, including location, connecting points, intensity of market, and availability of alternate routes.

Other uses may include buried pipelines, overhead transmission lines, or communication lines. Many of these grants are permanent. Again, similar transaction data must be obtained and analyzed for an appraiser to estimate the probable compensation to the railroad.

ESTIMATING MARKET VALUE UPON ABANDONMENT

This situation assumes that the railroad has abandoned use of the right of way or reasonably expects the Surface Transportation Commission to grant abandonment. The first step is to meet with the client and agree on the purpose, value to be estimated, date of valuation, methodology, and compensation, and draw up a written agreement detailing these matters. Additional data, which is of great importance, to be furnished by the client is the kind of title for each parcel of the right of way. This can be done by a color code on the valuation maps. The kinds of title are many and may include fee simple, deed for rail use, deed by condemnation in fee or for rail use only, survey, easement in perpetuity or for rail use only, and grants in different forms and with different limitations.

Acquisition by survey, commonly known as map filing, is usually found in the western part of the United States. At one time, the federal government owned much of the land west of the Mississippi River, and as an inducement to railroads to expand their lines to the West Coast, permitted them to file a survey of land needed with the Department of the Interior. When map filing is done, the railroad normally has only an easement-for-use title to the land included in the survey. Often these transfers are not on record in the county recorder's offices.

It is generally assumed that, upon liquidation, the logical, ultimate, and perhaps the only prospective buyer is the owner of abutting land. Thus, if the appraiser can obtain an assessor's map of adjoining land ownership, he can sectionalize the right of way based on adjoining ownerships to estimate the probable use and the value of each section.

TABLE 1 Acquisition of New Right of Way

	Grant District					
	Nebraska	West Virginia	Wyoming	Indiana	Chicago †	Arizona
Number of parcels	44	8	26	10	190	71
Number of vacant parcels	44	5	26	10	n/a	71
Number of improved parcels	0	3	0	0	n/a	0
Purchase price	$6,045,346	$316,000	$3,962,291	$381,832	$14,110,371*	$371,555
Total acres	2,459.53	212.0	1,272.19	28.63	1,406,692**	953.18
Average per acre	$2,457.93	$1,490.57	$3,114.54	$13,336.78	$8.78**	$390.00
ATF per-acre price	$479.34	$315.13	$221.53	$2,067.00	$2.30†	$63.77
Average acquisition factor	5.13	4.73	14.05	6.45	3.82	6.11
ATF data						
Number of sales	7	9	11	11	n/a	13
Total consideration	$800,500	$112,250	$7,334,045	$899,771	$3,703,173	$2,600,520
Total acreage	1,670	356.2	33,106.52	435.27	1,606,692**	40,779
Average per-acre price	$479.34	$315.13	$221.53	$2,067.00	$2.30†	$63.77

* Includes improvements and damages to remainder, but not demolition costs of east/west viaducts.

** In square feet.

† *Olcott's Blue Book* land value for parcels taken. Published by George C. Olcott & Co., Park Ridge, Illinois, 1986.

TABLE 2 Continued Transportation Use

State	Acres Sold	Length (miles)	Width (feet)	Price	Price Per Acre	*ATF* Price Per Acre*	Factor**	Purpose of Acquisition	*ATF* Price Extended
Idaho	2,193.55	1.43	100	$1,100,000	$501	$150	3.34	Transportation	$329,032
Illinois	56.50	4.66	100	5,025,000	88,938	51,097	1.74	Electric transmission (air rights only)	2,886,980
Illinois	31.00	2.16	100–200	150,000	4,839	3,000	1.61	Rail service	93,000
Indiana	13.91	0.77	—	234,520	16,860	10,000	1.69	Highway	139,100
Iowa	19.73	1.33	100	37,116	1,881	2,563	0.73	Rail service use by industry	50,568
Maryland	77.60	12.73	50	79,000	1,018	624	1.63	Electric transmission	48,422
Pennsylvania	72.80	6.90	20–200	7,416,000	101,868	61,667	1.65	Rail service	4,489,358
Rhode Island	88.20	8.75	—	825,700	9,362	8,692	1.08	Rail use by the state	766,634
South Dakota	290.00	17.80	100	86,832	299	225	1.33	Rail use by the state	65,250
Washington	1,639.18	123.10	100	1,500,000	915	915	1.00	Rail service use by industry	1,500,000
Washington	116.00	11.00	50	3,250,000	27,542	20,900	1.32	Street	2,466,200
Washington	210.00	19.00	60–100	454,650	2,165	1,900	1.14	Rail use by industry	399,000
	4,810.47	209.63		$20,158,818	$4,191	$2,751	1.52		$13,233,544

* *ATF* unit price reported by seller's appraiser. Each *ATF* unit was multiplied by the appropriate acreage, extensions totaled, and the product divided by total acreage to obtain average per-acre *ATF* unit price.

** Average per-acre sales price divided by average *ATF* per-acre unit price.

When an entire corridor is taken, most likely there is no damage to the remainder, making the continued use method appropriate. With a partial taking, there may be damages to the remainder.

There are two methods of estimating the market value of an abandoned rail right of way. One way is to follow the procedure outlined for continued use to estimate the *ATF* price of the entire corridor, regardless of the kind of title held by the railroad and then obtain data on the sales of abandoned lines and establish the ratios of sales price to the *ATF* price of such sales. Selecting the appropriate ratio for use in adjusting the *ATF* price involves analyzing the factors involved in each right-of-way sale, such as the percentage of conveyable title, economic factors, and general location. The time involved for this method is substantially less than the one that will be discussed next and far less expensive for the client.

Under this method, a single buyer who anticipates reselling the marketable sections has presumably paid a price that will permit the resale of the sections at a total price adequate to cover all his selling costs and interest on his investment, and make a satisfactory profit.

The other method involves estimating the probable use and market values of each marketable individual section, assuming one sale to a single buyer who anticipates reselling the marketable sections. The *ATF* price is estimated for each section as previously discussed. The *ATF* price of each section is discounted for access, topography, drainage, land use, and shape to arrive at the gross liquidation value of each section.

The positive or negative characteristics are usually estimated as a percentage of the *ATF* price. A summation of the gross liquidation value, which is the total of these percentage adjustments multiplied by the estimated *ATF* price, is then made. It is assumed that the readily marketable sections will sell the first year while others will require more time. In some cases 40% (of the total potential sales in dollars) is anticipated to be sold the first year, and 30%, 20%, and 10% will be sold in the next three years after acquisition. Some land may remain unsold.

Assume that the estimated *ATF* price of a section is $25,000, and that the percentage adjustments are -7% (slope), -15% (access), -10% (topography), and +5% (use), for a total of -27%. The gross liquidation value then must be $25,000 – ($25,000 × 0.27), or $18,250.

Now assume that the gross liquidation value of the marketable section is $500,000 and that 40% of the potential sales in dollars was sold in year 1; 25%, year 2; 20%, year 3; and 10%, year 4. Five percent were not sold. Table 3 shows how the net acquisition value (or the price the seller is expected to receive) might be estimated.

Obviously, the appraiser will use percentages for the adjustment of the estimated *ATF* price and an interest rate to the discount gross liquidation value estimates that are locally applicable at the effective time of the appraisal. (See table 4 for an example of a form that can be used to summarize and report total estimated gross liquidation value.)

A narrative report is important because of the many varying factors in a railroad right-of-way assignment. The content and the order in which these factors are presented can vary. If the report becomes too bulky, it may be divided into two volumes: appraisal report and appendix. A suggested outline for a narrative appraisal report is presented in figure 3.

CONCLUSION

The three methods of conducting right-of-way appraisals presented in this article vary, depending on the appraisal function and purpose. Each method requires that the appraiser meet the client and draw up an agreement addressing the research to be conducted and the needed details of appropriate land sales and sales of existing rights of way. The three methods presented estimate the following:

1. Probable cost of acquisition of land for a proposed right of way
2. Market value of the land of an existing right of way for continued use
3. Probable net liquidation value of an existing right of way at the time of or after it has been abandoned for rail use

There are, however, two other methods that deserve mention. One way involves a right of way that has been condemned in part or in its entirety. When an entire corridor is taken, most likely there is no damage to the remainder, making the continued use method appropriate.

With a partial taking, there may be damages to the remainder. Estimating the value of the part taken and the damages to the remainder should comply with local rules, which would probably include (1) estimating the value of the entire corridor using the continued use method; (2) then estimating the value of the remainder, which may be the net liquidation method; and (3) subtracting the

TABLE 3 Calculation of Net Acquisition Value

	Year				
	1	2	3	4	5
Sold	40%	25%	20%	10%	5%
Sales prices	$200,000	$125,000	$100,000	$50,000	$25,000
Less costs at 25%	50,000	31,250	25,000	12,500	—
Profit of 10%	20,000	12,500	10,000	5,000	—
Net proceeds	130,000	81,250	65,000	32,500	—
Discount to factor of present value at 12% to midpoint of year	0.9464	0.8450	0.7546	0.6736	—
Net liquidation value	$123,032	$68,656	$49,049	$21,892	0%
				Total net liquidation value:	**$262,629**

TABLE 4 Summary of Estimated Gross Liquidation Values

Number	Engineer's Sections (feet)	Square Feet	Acres	Interest	Zoning	Probable Use	*ATF* Unit Price	Estimated *ATF* Price	Adjusted Percentages*					Adjusted Unit Price	Gross Liquidation Value
									I	II	III	IV	V		
1	1,010-1,040		—	Fee	C	C	$3.00	$90,000	-0.33					$2.00	$60,000
2	1,041-1,066	26,660		Fee	I	I	$4.61	$122,933		-0.25	-0.10			$3.00	$80,000
3	1,067-1,070	350		Survey	A	A	$154.00	$53,846		-0.25	-0.10			$100.00	$35,000
4	1,071-1,096	266		Survey	A	A	$166.00	$44,156			-0.10			$150.00	$40,000
5	1,097-1,562	46,666		Perpetual easement	C	C	$1.87	$87,265					-0.20	$1.50	$70,000
6	1,563-1,962	40,000		Fee	C	C	$2.22	$88,800					-0.10	$2.00	$80,000
7	1,963-2,962	100,000		Fee	R	R	$1.00	$100,000	-0.50					$0.50	$50,000
8	2,963-4,962	200,000		Fee	R	R	$0.85	$170,000	-0.25				-0.25	$0.425	$85,000
														Total gross liquidation value:	**$500,000**

* I = Access, II = Topography, III = Drainage, IV = Land use, V = Shape.

FIGURE 3 Suggested Outline for Narrative Appraisal

- Title page
- Transmittal letter
  - Location of right of way
  - Limited appraisal—land only
  - Function of appraisal
  - Purpose of appraisal
  - Value to be estimated
  - Effective date of appraisal
  - Final conclusion
- Salient facts and conclusions
- Table of contents
- Assumptions, limitations, and conditions
- Area of right of way
  - Geographic data
  - Demographic data
  - Economy of area
  - Demand
- History of subject right of way
- Methodology
- Description of right-of-way sections (See figure 1)
  - Pictures
- Highest and best use (or probable use)
- Valuation analysis of each section
  - Relating comparable sales
  - Reconciliation of *AIF* unit price
  - Estimate of *AIF* price of section
- Summation of *AIF* section prices
- Adjustment of *AIF* total price to market
  - Ratios of other right-of-way sales (table 1)
  - Reconciliation of ratio for subject right of way
- Final value conclusion
- Certification
- Appraiser's qualifications
- Appendix
  - Maps indicating location of comparable sales
  - Description of comparable sales (figure 2)
  - Pictures of comparable sales
  - Other data

latter from the former to estimate the value of the part taken and the damages to the remainder. If it is required to separate the damages to the remainder and the value of the part taken, the right of way's value can be estimated as part of the whole before the taking. Deducting this value from the previously estimated value of the part taken and the damages to the remainder will provide an estimate of the damages to the remainder.

Clifford A. Zoll, MAI

Rail Corridor Markets and Sale Factors

This article presents an analysis of seller and buyer motives and of the resulting three markets for rail corridors. Distinguishing sale factors for the corridors, including the relationship of sale price to at-the-fence price, are examined as a guide to developing fair market unit price.

An effective method of analyzing rail corridor (i.e., right-of-way) transactions is to examine the motives of the parties involved. Research shows that there are three distinct motivations for these transactions: 1) liquidation, 2) continued use, or 3) new corridor acquisitions. The first two categories involve the sale of corridor land by a railroad company, and the third type involves the assembly of land by a railroad for the creation of a new right-of-way.

The same basic appraisal methods apply in each of the three situations under consideration. This article will present an analysis that will enable appraisers to arrive at a sound value conclusion for this type of property.

Rail corridors are usually 100 feet in width and are assembled by acquiring parts of large tracts of land as well as by warranty deed, quit claim deed, railroad deed for use, condemnation, easement, map filing, adverse possession, or ordinance. Title is likely to revert to the grantor upon abandonment unless a warranty or quit claim deed is obtained.

In the 1970s, appraisers believed there was a potential value, referred to as "at-the-fence value," in the existence of an assembled right-of-way that was in excess of the market value of adjoining lands. A helpful ratio relationship for evaluating corridor sales, referred to as the sale factor or acquisition factor, is obtained by dividing the sale or acquisition price by the at-the-fence (ATF) price.

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LIQUIDATION VALUE

Liquidation value as related to rail corridors is the sum of the prices in dollars at which the property would sell if offered in parcels to the various owners of adjoining land or others. Further, the property must be on the market for a reasonable time and should sell at a price below that of the "market price" as usually defined.

Following the acquisition by Consolidated Rail Corporation (Conrail) of the Penn Central Railroad and others, Congress enacted the Staggers Rail Act of 1980 (Public Law 96-448). This act was intended particularly to assist Conrail in disposing of right-of-way it had acquired but had for various reasons found it no longer wished to operate. The law, however, applies as well to all railroads. The Staggers Act provides, among other things, that if a railroad seeks to abandon a line and a financially responsible party files an offer to purchase the line, the abandonment certificate may be postponed for 30 days to provide the railroad and the prospective purchaser time to negotiate a mutually acceptable transaction. However, this postponement will occur only if the purchase offer is made while the request is pending before the Interstate Commerce Commission (ICC).

If unable to establish an acceptable price, either party may request the ICC to establish the selling price. After the price is established, the prospective purchaser may withdraw the offer. The railroad, however, is required to sell at that price, even if it considers the price unacceptably low.

To illustrate how liquidation appraisals were once conducted, it may be helpful to examine the Chicago and Northwestern Transportation Company abandonment of the rail corridor between Ringwood, Illinois and Lake Geneva, Wisconsin.[1] In this case, the prospective purchaser's appraiser included in his value estimate only those tracts of land that had been acquired by the railroad through warranty or quit claim deed, and valued such parcels at their net liquidation value as if sold to adjoining owners. The parcels were then discounted for selling time and costs as well as residue that might not sell.

This case and others that followed had a marked effect on appraisers, causing them to reconsider their 1970s methodology. In estimating the value of corridors appraisers now take into account the court's point in *Olson* v. *United States* that "The sum required to be paid an owner does not depend upon the use to which he devoted the land but . . . upon all the uses of which it is suitable."[2]

In 82 sales studied, the seller's motive was abandonment in 72 cases, sale of operating lines in 8 cases, and granting of easements for transmission lines in 2 cases. The buyers' motives were continued transportation use in 46.34% of the transactions.[3]

Table 1 includes rail sales for which complete data were available, and in which the motives of sellers and buyers conformed to the definition of "liquidation value." The ten properties are located in four midwestern states. Per-acre sale prices are related to per-acre at-the-fence prices as indicated by the sellers' appraisers.

1. ICC Docket #AB1 (Sub. No. 707). For a detailed discussion of this case, refer to Clifford A. Zoll, "Rail Corridor Sales" *The Appraisal Journal* (July 1985): 379–387.
2. *Olson* v. *United States* 292 US 246.
3. Zoll, 384.

When abandonment of a rail line occurs, parcels of the right-of-way that were acquired by means other than warranty deeds or quit claim deeds are likely to revert to the grantors.

It is worth noting, as shown in Table 1, that the factors produced by dividing sale price by ATF price range from 0.44 to 0.99 (i.e., sale prices varied from 44% to 99% of ATF prices). The average factor for these ten sales was 0.63. While liquidation was the railroad's motive, buyers planned various uses that affected the prices of the parcels. The sales noted in Table 1 were to single purchasers except for sale 1, which was to a group of local citizens.

One major liquidation sale was not included in Table 1 because it was a unique transaction. The sale involved approximately 77 miles and 1,616 acres of land in Illinois, and was divided into five transactions. The owners of adjoining lands in each of the five counties through which the parcel passed were organized into associations, and one deed was issued to each of the five groups. The seller reserved 33-foot-wide strips of land above and below ground, the right to enter to install pipe lines or electric transmission lines, and the right to remove rails and ties within 60 days of closing. The total price was $455,855, and per-acre prices for the five sale transactions ranged from $215 to $463, with an average of $275.90 per acre. ATF prices ranged from $200 to $1,200 per acre, with an average of about $700. The sale price factors ranged from 0.31 to 0.48, with an average of 0.39. Had the seller not reserved the 33-foot strips, the total sale price per acre would perhaps have been higher. However, because the track had been in the center of the right-of-way and the ballast had not been removed, most of the reserved land could not be used for agriculture without incurring considerable expense in removing both ballast and grade.

The data show that when entire corridors are sold to one entity, the factor will range between 0.55 and 0.80. When single sales of a divided property are made to a number of parties the factor will be substantially lower, ranging from 0.25 to 0.50.

CONTINUED-USE VALUE

Because of their long, narrow shape, rail corridors are unique properties. Their continued use for rail purposes makes a value-in-use approach appropriate, which is defined in the *Dictionary of Real Estate Appraisal*, second edition, as "value a particular property has for a specific use."[4]

Notwithstanding ICC and court decisions, when a corridor is required for continued use and the resulting transaction involves a fully informed seller and buyer, the sale factor is usually more than 1.0. This is demonstrated by the data in Table 2.

These twelve sales were of land in the middle Atlantic, Midwest, and West Coast states, and a total of 4,810.37 acres and 466.20 miles were involved. The total sum involved was $20,158,818 or $4,191 per acre. The ATF unit prices were those reported by the sellers' appraisers and averaged $2,751 per acre. The sale factors ranged from 0.73 to 3.34. If the highest and lowest factors are eliminated, then the sale factors ranged from 1.00 to 1.74, and the average sale factor was 1.52.

When abandonment of a rail line occurs, parcels of the right-of-way that were acquired by means other than warranty deeds or quit claim

4. American Inst. of Real Estate Appraisers, *Dictionary of Real Estate Appraisal*, 2d ed. (Chicago: American Inst. of Real Estate Appraisers, 1989), 316.

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TABLE 1 Liquidation

State	Number Acres Sold	Length in Miles	Width in Feet	Price	Price per Acre	ATF Price per Acre*	Factor**	Purpose of Acquisition	ATF Prices Extended
1 Illinois	152.40	11.4	100	$ 251,000	$ 1,647	$ 3,000	0.547	Avoid public use	$ 457,200
2 Illinois	127.00	9.8	100	380,000	2,992	3,937	0.760	Storage of rail cars	500,000
3 Iowa	3.77	—	200	166,705	44,219	54,450	0.812	Commercial stores	205,277
4 Minnesota	535.47	37.3	100	300,000	560	1,201	0.440	Agriculture	643,099
5 Minnesota	73.23	6.10	100	79,000	1,078	1,542	0.694	Recreation	112,921
6 Minnesota	145.39	8.20	100	100,000	687	695	0.990	Agriculture	101,046
7 Wisconsin	3.33	0.44	100	31,200	9,369	10,800	0.870	Urban redevelopment	35,964
8 Wisconsin	259.30	20.35	100	156,762	604	867	0.700	Recreation	224,813
9 Wisconsin	23.47	8.38	20–120	65,168	2,777	5,231	0.530	Rail use by city	122,772
10 Wisconsin	263.06	23.94	100	200,000	760	1,378	0.590	Highway/recreation	362,497
	1,586.42	125.91		$1,729,835	$ 1,090	$ 1,743	0.630		$2,765,589

*ATF unit price reported by seller's appraiser. Each ATF unit price was multiplied by the appropriate acreage and the product divided by total acreage to obtain average per acre ATF unit price.

**Average per acre sale price divided by average ATF per acre unit price.

TABLE 2 Continued Corridor Use

State	Number Acres Sold	Length in Miles	Width in Feet	Price	Price per Acre	ATF Price per Acre*	Factor**	Purpose of Acquisition	ATF Prices Extended
1 Idaho	2,193.55	1.43	100	$ 1,100,000	$ 501	$ 150	3.34	Transportation	$ 329,032
2 Illinois	56.50	4.66	100	5,025,000	88,938	51,097	1.74	Electric transmission (air rights only)	2,886,980
3 Illinois	31.00	2.16	100–200	150,000	4,838	3,000	1.61	Rail service	93,000
4 Indiana	13.91	0.77	—	234,520	16,860	10,000	1.69	Highway	139,100
5 Iowa	19.73	1.33	100	37,116	1,881	2,563	0.73	Rail service use by industry	50,568
6 Maryland	77.60	12.73	50	79,000	1,018	624	1.63	Electric transmission	48,422
7 Pennsylvania	72.80	6.90	20–200	7,416,000	101,868	60,296	1.69	Rail service	4,489,549
8 Rhode Island	88.20	8.75	—	825,700	9,362	8,692	1.08	Rail use by the state	766,634
9 South Dakota	290.00	17.80	100	86,832	300	225	1.33	Rail use by the state	65,250
10 Washington	1,639.18	123.10	100	1,500,000	915	915	1.00	Rail service use by industry	1,500,000
11 Washington	118.00	11.00	50	3,250,000	27,542	20,900	1.32	Street	2,466,200
12 Washington	210.00	19.00	60–100	454,650	2,165	1,900	1.14	Rail use by industry	399,000
	4,810.37	466.20		$20,158,818	$ 4,191	$ 2,751	1.52		$13,233,735

*ATF unit price reported by seller's appraiser. Each ATF unit was multiplied by the appropriate acreage, extensions totalled, and the product divided by total acreage to obtain average per acre ATF unit price.

**Average per acre sale price divided by average ATF per acre unit price.

deeds are likely to revert to the grantors. A sale for continued rail use, however, does not usually cause a reverter.

Sale 2 was of air rights only, for installation of a transmission line connecting two major substations in a major metropolitan area. The purchasing electric company compared the cost of placing the line underground in an adjoining street and concluded the air rights were the least costly.

Of twelve sales, eight were for continued use for rail service, either by other railroads, the state, or industry. Of the remainder, three were for electric transmission lines and one was for a public street. When sales of corridors were for continued corridor use, the range in sale factors varied depending on the motives of the parties involved in the transaction.

NEW CORRIDOR ACQUISITIONS

A mining company required a right-of-way for a spur line approximately 15 miles in length to reach an existing rail line. After it acquired approximately 50 land parcels and built the line, several of the sellers filed a suit in federal court alleging inadequate payment for their land and charging fraud.

An appraiser/consultant was engaged by the defendant's law firm to determine whether a fair price had been paid for each complainant's property. Because only land was involved, the sales comparison approach appeared to be the most appropriate approach to value.

Had a similar acquisition been made of land parallel to the subject, unit prices of such acquisitions would have provided ideal comparisons. However, no such acquisition had occurred. Accordingly, the appraiser decided that the fairness of the mining company's acquisitions could be determined by comparing the acquisition factors of other right-of-way assemblies, regardless of their location, date, or size. Because the mining company, not having power of condemnation, had acquired its right-of-way by negotiation, the comparables examined were those also acquired by negotiation. Most railroads prefer to acquire by negotiation rather than by condemnation because it is usually less time consuming, less costly, and less destructive to the community relationship.

Most railroads prefer to acquire by negotiation rather than condemnation because it is usually less time consuming, less costly, and less destructive to the community relationship.

Table 3 contains the detailed data concerning seven acquisitions and comparative ATF prices.

On line 12 in Table 3, note that the purchase acquisition factors ranged from 3.74 to 14.09. An analysis was made of each of these acquisitions and the buyers' motives. The Indiana sale factor of 6.45 was higher than expected. It was found that the railroad required this short line to provide a spur to a proposed major manufacturing company plant whose product it wished to haul. The assumption of the railroad company was that if it could show it had the right-of-way before any competition could do so, it would receive the exclusive shipping contract. In less than two months, it acquired the ten parcels needed. Land cost was a minor consideration that substantially increased the price over ATF prices.

In Nichols County, West Virginia, the sale acquisition factor was 3.72. In this case, a railroad required a spur to reach a new coal mine. All parcels were acquired by negotiation within a year. The comparison sales were those used by the railroad in its consideration of price.

In Arizona the sale acquisition factor was 6.11. The railroad had determined to relocate its line to reduce some grades on the existing line, and over a period of almost

TABLE 3 Acquisition of New Right-of-Way

Factors	Indiana	Nichols County, West Virginia	Arizona	Wyoming	Nebraska	Chicago	Grant District, West Virginia
1 Number of parcels	10	7	71	26	44	190	8
2 Number vacant parcels	10	4	71	26	44	N.A.	5
3 Number improved	0	3	0	0	0	N.A.	3
4 Consideration range	$3,000–$125,000	$8,000–$60,000	$15–$33,936	$4,940–$700,000	$125–$1,350,000	N.A.	$800–$68,500
5 Total consideration	$381,832	$316,000	$371,555	$3,962,291	$6,045,346	$14,110,372**	$316,000
6 Total acres	28.63	212.014	953.18	1,272.19	2,459.53	1,606,692***	212.014
7 Range in size acres	1.10–5.08	4.84–67.18	0.09–93.30	2.47–385.08	0.3–799.59	N.A.	4.84–6.7185
8 Range in acre-price	$2,586–$33,314	$595–$5,214	$6–$5,148	$610–$66,765	$75–$66,666	N.A.	$595–$5,214
9 Average paid per acre	$13,336	$1,140	$390.00	$3,114.54	$2,457.93	8.78***	$1,490.47
10 ATF per-acre price*	$ 2,067	$ 305	$ 63.77	$ 221.53	$ 479.34	$2.30***	$ 315.13
11 Acquisition range factor	1.25–16.12		.09–80.72	0.9–362.8	0.02–139.2	N.A.	2.10–6.38
12 Avg. acquisition factor	6.45	3.74	6.11	14.09	5.13	3.82	4.73
13 Dates of acquisition	4/85–5/85	12/84–9/85	1/61–11/65	7/83–11/83	7/83–11/83	1956–7	1984–95
*ATF Data							
Number of sales	11	7	13	11	7	N.A.	9
Total consideration	$899,771	$219,500	$2,600,520	$7,334,045	$800,500	$3,703,173†	$112,250
Total acreage	435.27	192.46	40,779	33,106.52	1,670	1,606,692***	356.3
Average size parcel	39.57	27.5	3,136.85	3,009.41	238.57	8,456***	39.58
Average per-acre price	$ 20.67	$ 305	$ 63.77	$ 221.53	$ 479.34	$2.30***	$ 315.13
Sale dates	1981–84		7/59–4/61	1982–83	1982–83	1956‡	—

**Includes improvements and damages to remainder, but not demolition costs of east/west viaducts.

***In square feet.

†*Olcott's Blue Book* land value for parcels taken.

‡*1956 Blue Book* values.

Real Estate Valuation in Litigation

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CHAPTER 5
HIGHEST AND BEST USE

"Fundamental to the concept of value is the theory of highest, best and most profitable use. . . . Highest and best use for land is *the use that, at the time of appraisal, is the most profitable likely use.*"[1] This statement holds true in condemnation appraisal. The courts have universally held that property acquired under the sovereign's power of eminent domain is to be valued in recognition of its highest and best use.[2]

When an appraisal involves a partial acquisition, the appraiser must make two separate and distinct highest and best use estimates. To determine a property's highest and best use in the before situation, any special influences of the proposed project are disregarded. To estimate the highest and best use of a property in its after situation is often more difficult, because it is necessary to study the impact of the proposed project in such areas as pending zone changes by reason of the project, conformance of the remainder property to existing zoning and setback requirements, and general changes in the neighborhood. It must be realized that, in the after situation, a whole new real estate environment is created by reason of the project.

The appraiser must keep in mind that the estimate of the property's highest and best use in the after situation is a totally independent study of the property, not a modification of the study of the property's highest and best use in the before situation. If the appraiser does not estimate the property's highest and best use correctly, in both the before and after situations, it will be impossible to estimate the property's value correctly.

Many definitions of highest and best use have evolved over the years; some are more appropriate than others for purposes of condemnation appraising. Many of the definitions have been expanded to incorporate explanations and restrictions adopted by the courts in their rulings on eminent domain cases. In some instances, the appraiser may find that no single, published definition of highest and

George R. Karvel

Public Utility Easements in Railroad Right-of-Ways

When valuing public utility easements within a railroad right-of-way, an appraiser can employ several approaches to value. In this article, the series of mutually exclusive decisions prerequisite to selecting the most appropriate valuation technique is explored. A decision model is used to guide the reader as the author examines the status of a utility with regard to the right of eminent domain and discusses defining the larger parcel, selecting the corridor's highest and best use, and identifying the related valuation techniques.

In this article, the issues relevant to valuation of public utility easements in railroad corridors are discussed. On first examination, the problem and solution consist of valuing a partial interest in real estate. The adversarial interests of the parties, however, differ significantly regarding proper application of partial taking or condemnation valuation concepts. Areas of difference include right of eminent domain, value to buyer or seller, definition of the larger parcel, fee simple ownership, highest and best use, and "across-the-fence" (ATF) value.

Further, some right-of-way valuation models include application of questionable assemblage or corridor enhancement factors to determine corridor value. Although disputed, a useage or occupancy factor is often incorporated in lieu of before-and-after valuation to determine the value of the utility's right-of-way.

Relying on valuation theory, a schematic decision model was constructed to assist the appraiser in resolving the valuation problem (see Figure 1). The model is applicable in all corridor valuation situations regardless of the entity negotiating to acquire or maintain an easement in a pre-existing right-of-way. Each decision point is discussed in the sections that follow.

PUBLIC UTILITY OR PRIVATE USER

Valuation of easements in railway corridors first requires that the appraiser determine the lessee or buyer's right of eminent domain.

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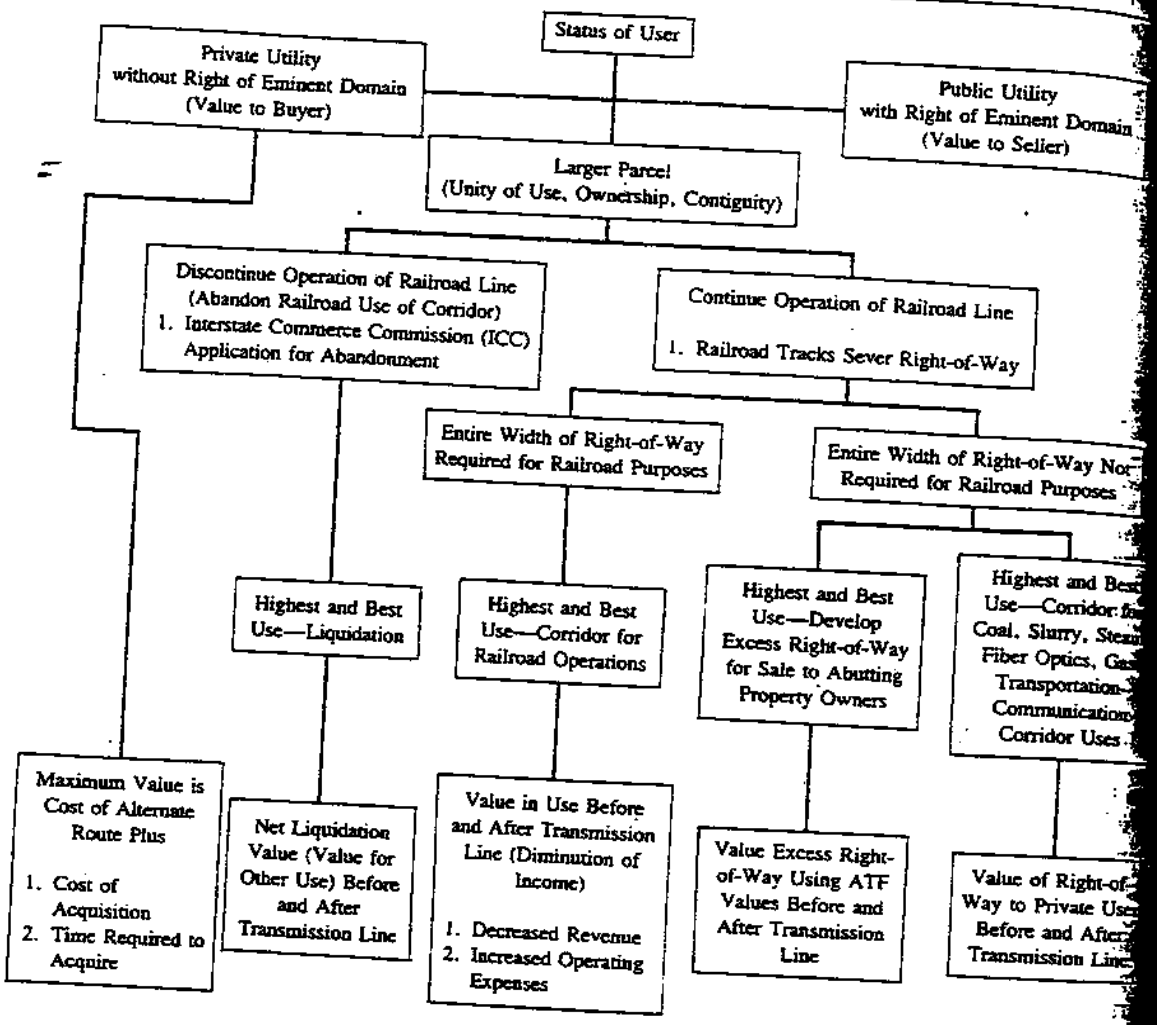
FIGURE 1 Decision-Valuation Model for Valuing Public Utility Easements



The status of the user has a significant effect on the valuation approach and values determined, regardless of the appraisal assignment.

Generally, public utilities have the right of eminent domain and power of condemnation; private corridor users do not. This distinction is important in deciding whether to adopt a valuation approach that measures value in terms of the buyer (taker) or seller (owner).

Value to buyer (taker)

Private transportation-communication corridor users have few options but to obtain necessary easements by acquiring new right-of-ways, parcel by parcel.[1] An alternative is to negotiate for an easement with owners of an existing corridor such as a railroad. The maximum value of an existing corridor easement to a private corridor user, though, is the cost of acquiring an easement for a new alternate route plus administrative, le-

1. John P. Dolman and Charles F. Seymour, "Valuation of Transportation/Communication Corridors," *The Appraisal Journal* (October 1978): 509–22.

gal, and time costs of acquisition.

When acquisition costs of a new corridor are divided by the market value of an existing corridor, an assemblage factor or multiplier may be calculated. ATF sales, or sales of adjoining land, are used to establish the market value of the existing corridor.

John P. Dolman and Charles F. Seymour have reported values for such right-of-way assemblages as being "'two to three times' the prevailing price of farm land acreage. . . . A higher multiplier (value) was reflected in urban areas. . . ."[2] From their own experience, multiples ranging from two to six were reported.[3]

Dolman and Seymour maintain that it is important to

> distinguish the "assemblage" costs incurred in assembling a new "custom corridor" from the usually lower enhancement factor realized in the sale of an already existing corridor.
>
> In the market approach to enhancement factors, actual sales of existing corridors are researched and compared to ATF value on the date of the sale.[4]

Summarizing corridor assemblage and enhancement factors may be calculated as follows:

$$\text{Corridor assemblage factor} = \frac{\text{Cost of "new" corridor + Legal and administrative costs + Time}}{\text{ATF value of existing corridor}}$$

$$\text{Corridor enhancement factor} = \frac{\text{Actual sale of existing corridor}}{\text{ATF value of existing corridor}}$$

Each factor is presumed to represent a premium over the ATF value of an existing corridor. Also, assemblage factors are presumed to be greater than enhancement factors.

The assumption when valuing an existent right-of-way is that the corridor has some value in excess of the value of adjacent land. Justification for the assemblage or enhancement factor is found in the concept of plottage. Appraisers generally agree that small parcels combined into a larger one with greater utility result in a value greater than the sum of the parts.

Value to the buyer based on the cost of alternative corridors or income to be earned is relevant to private entities. Assemblage or enhancement factors may be used to establish the maximum negotiated price or rent to be paid by a willing and knowledgeable private user.

Regardless of the benefits to be derived or costs to be avoided, a public utility with the right of eminent domain is responsible only for the diminution in value or loss to the principal corridor occupant. The basis of the valuation measurement when a public utility with the right of eminent domain acquires an easement within an existing right-of-way is value to seller.

Value to seller (owner)

The principle that public utilities with the right of eminent domain have the power of condemnation is well established and accepted. Negotiations for purchase or rental of existent right-of-ways to a public utility are limited by the utility's status as a potential condemnor.

> Acquisition attempts for public and quasi-public easements usu-

2. Ibid., 513.
3. Ibid., 520.
4. Ibid.

The status of the user of the railroad corridor has a significant effect on the valuation approach and values determined, regardless of the appraisal assignment.

> ally begin with negotiation efforts, but all parties are aware that the agency (utility) can and will resort to authorized eminent domain proceedings if negotiations are not successful.[5]

In addition to assembling the new corridor, parcel by parcel, or negotiating to use an existing corridor, public utilities may also condemn an existing corridor to acquire the necessary right-of-way. Because condemnation, real or probable, affects the valuation of an existent corridor, it is reasonable to expect standards of value in line with condemnation case law.

The most extensive valuation of railway corridors involved a Special Court's decision in the U.S. government's acquisition of 16,000 miles of right-of-ways to form Conrail.[6] A summary of the Special Court's opinions was presented by William R. Perlik and David R. Johnson.[7]

The court affirmed that "value to the owner not value to the taker . . . should determine the basic measure of just compensation."[8] Thereby,

> the entire case proceeded on the basis that the condemnee must show what value he would have been able to realize from his property if it had not been taken for public use. . . . compensation may not be established with reference to any "values" not capable of being sustained in the marketplace.[9]

Further, the Special Court rejected the use of assemblage value, enhancement factors, and rela multipliers.

> The mere fact that right-of-wa has been assembled is not signifi icant *unless* there is nonspecula tive likelihood of sales in the pri vate marketplace for amount higher than those that could be realized by disassembling the righ of way and selling it as separate parcels.[10]

Numerous opinions rendered courts of jurisdiction have reit ated that property rights acqui in eminent domain proceedings valued from the perspective of t value to the seller (owner). In O ter Tail Power, the legal princi is clearly set forth:

> It must be borne in mind that the material consideration is not the benefit to be derived by the pe titioner, but the damages sus tained by the landowner. "It is the damage caused by imposing the easement on the land which the owner is entitled to receive." Robbins v. St. Paul, Stillwater & T.F.R. Co., 22 Minn. 286. It makes little or no difference what benefit the petitioner may receive (citations omitted) and it is of lit tle consequence whether or not the description furnishes data for an estimate of the value of such benefits.[11]

In *Olson* v. *United States* th same rule was stated in the follow ing language by the U.S. Supreme Court.

> Considerations that may not be reasonably held to affect market value are excluded. Value to the taker of a piece of land combined

5. Harold D. Albritton, *Controversies in Real Property Valuation: A Commentary* (Chicago American Inst. of Real Estate Appraisers, 1982), 123–24.
6. *In the Matter of the Valuation Proceedings Under Sections 303(c) and 306 of the Regional Rail Reorganization Act of 1973*, 439 F. Supp. 1351 (Sp. Ct. 1977) ("Cue Opinion"); 445 F. Supp. 994 (Sp. Ct. 1977) ("CMV Opinion"); Sp. Ct. Rptr. N38196 (Nov. 24, 1981) ("Rail Use Opinion").
7. William R. Perlik and David R. Johnson, "Valuing Rights of Way: Lessons from 'The Rail Case,'" *Right of Way* (February 1983), 8–13.
8. CMV Opinion at 1011-16.
9. Perlik and Johnson, 8.
10. Rail Use Opinion at 220; Perlik and Johnson, 9.
11. *Otter Tail Power*, 128 Minn. 415, 151 N.W. 198 (1915) at 199.

with other parcels for public use is not the measure of or a guide to the compensation to which the owner is entitled.[12]

Further, value to alternative users who lack the power to condemn was rejected in *United States* v. *Miller*.

> Since the owner is to receive no more than indemnity for his loss, his award cannot be enhanced by any gain to the taker. Thus, although the market value of the property is to be fixed with due consideration of all its available uses, its special value to the condemner as distinguished from others who may or may not possess the power to condemn must be excluded as an element of market value.[13]

The concept of value to the seller is the appropriate basis of valuation when the buyer or lessee possesses the right of eminent domain. The stage of acquisition, whether it be negotiation, arbitration, or eminent domain proceedings, does not alter this fundamental concept of value.

Whatever the valuation methodology employed, the values must be verifiable in the marketplace. It is also clear that when public utilities acquire or periodically seek to renegotiate rents for easements in pre-existing right-of-ways, the compensation paid is limited to the damages incurred by their occupancy.

The measurement of these losses requires identification of the larger parcel as well as before and after valuation to gauge the extent of damages.

LARGER PARCEL

Before proceeding to value an easement in an existing corridor, the appraiser should obtain the legal description and physical measurement of the larger parcel, the easement area, and the land remaining unencumbered by the easement.

The larger parcel is "the portion of a property that has unity of ownership, contiguity, and unity of use."[14] Two issues relevant to the valuation of easements in railway right-of-ways are significant when defining the larger parcel. One is the pending or actual abandonment of the railway. The second is the condition of title within the larger parcel.

Track abandonment

Continued use of a railroad track for the movement of freight or passengers creates self-inflicted severance on the railroad's right-of-way. For valuation purposes, the right-of-way is divided by the presence and continued use of the tracks. The two sides of the right-of-way cannot be joined or, therefore, viewed as constituting the larger parcel. The larger parcel is that part of the right-of-way on the same side of the railroad tracks as the easement.

The concept of value to the seller is the appropriate basis of valuation when the buyer or lessee possesses the right of eminent domain.

Severance by the railroad tracks results in lack of contiguity and prohibits unity of use. This obstacle to viewing the entire right-of-way as the larger parcel is overcome if the track has been abandoned or an Interstate Commerce Commission (ICC) application for abandonment has been filed. For the abandonment application to be approved:

(1) The ICC must find that the public convenience and necessity (PC&N) permit abandonment and
(2) no financially responsible party provides financial as-

12. *Olson* v. *United States*, 292 U.S. 246, 78 L. Ed. 1236, 1245 (1981).
13. *United States* v. *Miller*, 317 U.S. 369, 375, 63 S. Ct. 276, 280, 87 L. Ed. 336, 343 (1943).
14. American Inst. of Real Estate Appraisers, *Dictionary of Real Estate Appraisal* (Chicago: American Inst. of Real Estate Appraisal, 1984), 179.

sistance, subsidy or purchase. . . .[15]

Abandonment of the railway permits use of a valuation procedure called "net liquidation value," which will be discussed later.

Appraisers should note that pending applications for abandonment are unlikely to be approved if the line is earning a profit. In addition, claims of planned abandonment are insufficient to override the fact that an operational rail line severs its own right-of-way and restricts the larger parcel to one side of the railroad tracks.

Title

To protect themselves and inform readers of their report, appraisers usually insert the following statement in the transmittal letter.

> No responsibility is assumed for the legal description or for matters including legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated.[16]

Although the assumption and disclaimer are valid, appraisers of railroad right-of-ways should be aware that the railroad's title to right-of-way is generally anything but clear. Not only may marketability be questioned, but also the "unity of ownership" required to define the larger parcel.

Appraisers of railroad right-of-ways should be aware that the railroad's title to right-of-way is anything but clear.

Title problems are often the rule. They are a result of the means by which railroads assembled their right-of-way, including failure to record necessary documents.

Use of the right-of-way in many instances has been acquired by deed, easement, and condemnation, with and without reversionary clauses to the grantor, heirs, and assignees.[17] Parts of the r of-way may also have been quired by grant of Congress verse possession, and prescript

The status of title should be termined by legal counsel: the road may not have the right to vey title for other use; contin of ownership is at question; a minimally, there will be a cos cure any defects of title discover

The cost to cure is a necessa expense affecting value, parti larly when the valuation method defined area of the larger parcel quire unity of ownership. Cons eration should also be given to ICC ruling that held that the r road should not receive any co pensation for real property which it does not hold marketa title.[18]

Easement area

An easement may be described square feet of occupancy within railroad right-of-way. The eas ment may also be surveyed a drawn on maps of the corridor. T easement area, however describe or drawn, does not preclude all a ternative uses. In other words, easement typically does not r quire 100% use of the air right surface, or subsurface of the land

For example, an electric trans mission line consists of a series o towers, tower pads, and overhe wires. The area occupied by t towers and pads is a taking of a the rights of use. Alternative use are also precluded for some di tance around each tower. Ove head transmission lines, in con trast, allow many uses beneath the such as agricultural pursuits, park ing, highways, and construction o

15. James D. Jennings, "Railroad Right of Way Appraisal," *Right of Way*, (October 1984): 4.
16. American Inst. of Real Estate Appraisers, *The Appraisal of Real Estate* (Chicago: American Inst. of Real Estate Appraisers, 1983): 519.
17. Herb Atkinson, "Abandoned Railroad Rights-of-Way-Title Problems," *Right of Way* (December 1986): 8.
18. AB-1 (Sub-No. 70F), Chicago and Northwestern Transportation Co.—Abandonment Between Ringwood, Ill., and Geneva, Wis. (Lake Geneva Line), 363 I.C.C. 956 (1981), p. 5.

residential, commercial, or industrial space (zoning and building codes permitting).

The limitation on construction beneath transmission lines is a result of either electric utility policy or building codes. In Minnesota, building codes permit construction beneath transmission lines but the structures must have a two-hour fire roof. The added cost of a two-hour fire roof reduces the value of the affected site by the same amount.

After defining the larger parcel, the appraiser needs to recognize that the value of the easement area includes:

- The value of the land occupied by towers and pads and land precluded from any alternative use for some minimal distance around each tower
- The increased cost, or loss, of use beneath the transmission line and within the easement area
- Severence damages to that part of the right-of-way bounded by the railroad tracks[19] and easement area

Use adjacent to the towers, beneath the transmission line, or in unencumbered areas will be defined by whatever places the greatest constraint on the alternate use, whether it be building codes, zoning, state health and safety standards, or the electric utility. Loss of use may be measured by applying the before-and-after rule of appraisal.

BEFORE-AND-AFTER RULE

Application of the before-and-after rule requires that the appraiser first value the larger parcel at its highest and best use without the easement in place. The remainder is then valued giving full consideration to the railroad's capacity to continue using the encumbered area subject to the rights of the beneficial estate.[20]

Application of the before-and-after rule requires that the appraiser first value the larger parcel at its highest and best use without the easement in place.

The remainder in the case of an electric utility transmission line is the entire larger parcel less the area occupied by towers and pads. The area occupied by the tower and pads precludes all alternative use to the subservient estate and is therefore essentially a fee taking.

The difference between the before and after values represents the monetary loss to the railroad. It also represents, monetarily, the allocation of the bundle of rights between the electric utility easement and the remainder of the railroad right-of-way. The monetary loss may also be expressed as a percentage of the before value. When the value of the electric utility easement (loss to the railroad) is expressed as a percentage of the before value of the larger parcel, the label "useage factor" is often applied.

In efforts to reduce the time and cost of appraisal, the useage factor has been, at times, subjectively estimated at 15% to 80% of fee simple value. General assumptions regarding easement value (useage factors) should be avoided. The useage factor must be measured using before and after valuations. "The appraiser should be careful . . . to avoid estimating easement values as a percentage of fee simple value. . . ."[21] Easement values may range from nominal to 100% of the fee value and may only

19. Maximum right-of-way required for rail purposes is often established by state law; i.e., Minn. Stat., Sec. 219.46, Subd. 1: ". . . side clearance of not less than eight feet six inches from the center line of the track . . . ." For valuation purposes, right-of-way beyond that boundary is available for other use and is referred to as excess right-of-way (see Figure 1).

20. Albritton, 124.

21. Ibid., 127.

be determined by direct before and after valuations.

The approach to value may include measures of value in use, net liquidation value, ATF values, and value to private right-of-way users. Which value approach to employ is a function of the appraiser's highest and best use analysis.

HIGHEST AND BEST USE

The *Dictionary of Real Estate Appraisal* provides three definitions of highest and best use.[22] Two definitions state that the "use" should be reasonable and probable and result in or support the highest present value.

Consequently, determination of the highest and best use of a railroad right-of-way excludes any use that is speculative or lacking verification in the marketplace. Further, the basis for measuring the effect of a utility easement on a railway corridor must have a higher present value than alternative uses. There are four alternative uses from which the appraiser may select highest and best use for a railroad corridor. They include liquidation; continued operation of the railroad and exclusive use of the corridor for rail purposes; sale of excess right-of-way; and use of excess land as a transportation-communication corridor.

Each use is mutually exclusive; that is, whatever the highest and best use, it has only one related valuation approach and precludes others of lesser value.

Net liquidation value (NLV)

When the appraiser has determined that railroad operations have been abandoned, liquidation of the corridor is the only viable alternative. Liquidation may be accomplished by selling the corridor intact for nonrail use or, alternatively, dismembling and selling for scrap values.

Nonrail corridor user's demand for intact corridors is minimal. Thus, sales of intact corridors are practically nonexistent. The lack of comparable sales of intact corridors precludes valuation by means of market comparisons.

When valuing abandoned corridors, an NLV approach is most often employed:

> The net liquidation value, for the highest and best use for non-rail purposes . . . shall be determined by computing the current appraised market value of such properties for other than rail transportation purposes, less all cost of dismantling and disposition of improvements necessary to make the remaining properties available for their highest and best use and complying with applicable zoning, land use and environmental regulations.[23]

In summary, the right-of-way is divided into segments based on adjoining land use. Appraisal values are based on ATF prices consistent with zoning, building, and environmental codes. Each segment is adjusted for size, shape, access, topography, and so forth.

The sum of the values for each segment of the corridor is also adjusted to account for selling and administrative costs. The value of the corridor is further reduced for the cost of restoring the corridor to its highest and best use (removing railroad tracks, ties, ballast, and bridges), plus any salvage value.

The final adjusted value is then discounted to net present value (NPV) to reflect the time to liquidate each segment of the corridor.

> The two leading cases which have established the legal principles and

22. *Dictionary of Real Estate Appraisal*, 152.
23. Code of Federal Regulations, Section 1121.43(C) of CFR 1121, Title 49.

appraisal procedures to be used in establishing NLV for non-rail use are Lake Geneva Line (3) and the CNJ Opinion. (4)."[24]

Inasmuch as acquisition or renegotiation of a utility easement in a railway corridor does not preclude alternative uses, and a public utility has the power of condemnation, NLV is measured before and after the transmission line. The value of the easement is the difference between the before and after values. The public utility is responsible for the diminution in value as measured by the difference in the before and after appraisals.

Value in use

Presuming that the highest and best use for the corridor is for continued rail operations and the entire width of the right-of-way is necessary for railroad purposes, the appraiser must then base the valuation on value in use; that is, continued operation of the railway.

Diminution of value resulting from a public utility's occupancy of the railroad right-of-way can occur only through the railroad's loss of revenue or increases in operating expenses. The loss of value to the railroad, or the value of the easement, may be measured by documenting the loss of revenue or increased costs of operation. The change in profitability may then be capitalized to estimate the easement value. In effect, documentation of revenues lost or increased operating costs is a measurement of the difference in the railroad's profitability before and after electric transmission lines, towers, and pads.

Value of excess right-of-way

When the railroad continues to operate and the entire corridor is not required for railroad purposes, the highest and best use may be to sell excess right-of-way to abutting property owners or developers. This value approach is similar to determining NLV.

The differences are that the railroad is continuing operations, the track severs the corridor, and the excess land is approximately one-half the size of the entire corridor width. Excess land lies on the same side of the tracks as the easement and excludes the statutorily required distance from the centerline of the tracks.[25]

In this value approach the excess corridor is segmented, ATF prices are employed, and the value of the easement is set using before and after measurements. The public utility is responsible for the diminution in value of excess corridor land occasioned by the presence of the electric transmission line, towers, and pads. Additional damages may be supported if revenue loss or increased operating cost can also be documented.

Value transportation-communication corridor

When the railroad continues operation, the highest and best use of excess land may be as a transportation-communication corridor. The measures of value must be found in actual sales or rental of existing corridors to other users.

The diminution of value caused by the public utility's easement will be reflected in reduced rental rates or purchase prices by other users. The absence of verifiable market

24. Jennings, 5, 7; (3) Chicago and Northwestern Transportation Co.—Abandonment Between Ringwood, Ill., and Geneva, Wis. (Lake Geneva Line); *Chicago and Northwestern Transportation Co. v. U.S.*, 678 F.2d. 665 (1982). (4) Central Railroad of New Jersey Opinion (CNJ Opinion), 571 F. Supp. 1269, 1278–1302 (Sp. Ct. 1983).

25. See n. 19. Also, excess land is often synonymous with larger parcel.

transactions often precludes this approach to value.

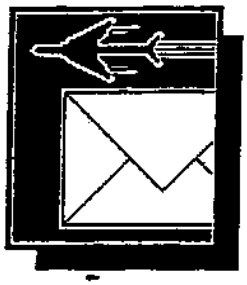
CONCLUSION

The loss of value to the owner resulting from a public utility's power of condemnation can only be measured using a before-and-after approach to value.

In this article, a series of mutually exclusive decisions designed to lead the appraiser to an appropriate valuation model for a public utility easement in a railroad right-of-way was presented. Consideration must be given to the status of the utility with regard to the right of eminent domain. Evaluation of the larger parcel and highest and best use further limit selection of a valuation model. The issues of enhancement factors and usage factors have been found to lie outside the scope of public utility easement valuation.

Appraisers know that it is appropriate to value raw land, homes, office buildings, and shopping centers using comparable sales. It is also appropriate to use purch prices and rental rates for ea ments in railroad right-of-ways estimate an easement's value t private enterprise. Although co parable sales are measures of va to a buyer or lessee in the op marketplace, they do not measu the value of the easement acquir by a public utility.

A public utility with the right eminent domain serves the publ good and therefore is given speci consideration when acquiring lan or easements for public purpose Regardless of the highest and be use or valuation approach selected a public utility with the power condemnation is clearly only re sponsible for the diminution in value to the owner resulting fro the easement. This loss of value ca only be measured using a before and-after approach to value.



LETTERS TO THE EDITOR

In his interesting article, "Public Utility Easements in Railroad Right-of-Ways" (*The Appraisal Journal* [January 1989]:99–108), George R. Karvel presents excerpts from five or six court decisions, gives his interpretations of them, and develops a thesis well designed to make public utility acquisition agents leap for joy. To those railroad disposition agents who may disagree, I say "Don't let him do this to you!"

On reading Karvel's article, I noted 26 points on which I disagree, including several in which he obviously disagrees with the article that John Dolman and I wrote for the October 1978 *Appraisal Journal* entitled "Valuation of Transportation/Communication Corridors."

The principal areas in which I believe Karvel's reasoning to be flawed are listed below.

1. Karvel supports a "two-price" concept, indicating that a purchaser with the power of condemnation need not pay as much for a given property as a private purchaser. This violates the hard-won concept of just compensation. Why should a condemnor's right of condemnation have any effect on the market value of a property?
2. Karvel states that the presence of railroad tracks is a "self-inflicting severance on the railroad's right-of-way." I disagree. By the same line of reasoning, a front yard is severed from a back yard by the presence of a house in between! Railroad tracks have little or no effect on additional longitudinal occupancies, and there are literally thousands of crossing easements. We recently valued a fiber optic easement that crisscrossed back and forth *under* the tracks many times.
3. Karvel states that "Diminution in value resulting from a public utility's occupancy of the railroad right-of-way can occur only through the railroad's loss of revenue or increases in operating expenses." Carried to its illogical conclusion, this means that if a railroad is losing money, and it won't lose any more if power wires are strung, the power company should not pay anything for the easement!
4. Karvel states that "non-rail user's demand for intact corridors is minimal and sales of intact corridors are practically nonexistent." Like all special-purpose properties, there is a thin market for corridors. It is *not* nonexistent, however, and *can* be analyzed.
5. I agree with Karvel that condemnation compensation should not include any *special* value to the condemnor and, in most states, is usu-

Here, the plaintiff is a Michigan resident, one defendant sold products to a U.S. Distributor, and the other is located in the United States. Furthermore, having extended a warranty to end-users who submit the appropriate registration card and knowing that AVCO had subdistributors located in and near Michigan, VM cannot argue that Michigan is an unreasonably distant or inconvenient forum for litigation. If it were, VM would not have extended end-user warranties. Furthermore, since 1983, VM and VMGA have jointly marketed VM diesel engines via regional offices, one of which they specifically designated to cover the Michigan market. (Reply to Plaintiff's Brief in Opposition to Defendants' Motion to Dismiss and Quash Service of Process at ex. G.) This not only demonstrates the minimal burden that litigation in Michigan would place on defendants, it also increases Michigan's interests in resolving this dispute since sales originating at VM and VMGA's regional office are likely to continue to have an impact on Michigan residents.

Finally, the plaintiff's interests as well as concern with judicial economy weigh in favor of an assertion of jurisdiction. Michigan is the most logical, if not the only, forum in which plaintiff could sue the subdistributors who supplied the product. Were it not allowed to pursue simultaneously its action against all defendants, valuable judicial resources would likely be needlessly expended in duplicative litigation.

IV. Conclusion

For the reasons stated above, defendants' motion to dismiss pursuant to Rule 12(b)(2) is denied.

UNITED STATES of America, Plaintiff,

v.

104 ACRES, MORE OR LESS, situated IN KEELER TOWNSHIP, VANBUREN COUNTY, MICHIGAN, and Dukesherer Farms, Incorporated, a Michigan corporation, Defendants.

No. K83-468.

United States District Court, W.D. Michigan, S.D.

July 24, 1987.

The United States brought land condemnation proceeding and party claiming interest in condemned land disputed value of land. The District Court, Enslen, J., held that Government taking of crop land by subjecting crop land to restrictive easement require compensation to landowner in amount of $233,994.

Ordered accordingly.

1. Eminent Domain ⇐122

Landowner is entitled to receive just compensation whenever United States takes any of his property for public use.

2. Eminent Domain ⇐124, 131

Landowner, entitled to receive just compensation when United States takes any portion of his property for public use is normally entitled to fair market value of property on date it was appropriated, and in determining fair market value, court must consider what rational seller, willing but not obligated to sell, would take for property, and what rational buyer, willing but not obligated to buy, would pay for property, and must take into account all considerations that might fairly be brought forward and given substantial weight in bargaining between owner willing to sell and purchaser desiring to buy.

3. Eminent Domain ⇐134

In determining fair market value landowner is entitled to receive as result of governmental taking of property, court must consider highest and best use of prop-

erty, either in its current state or for what it is likely to be needed in reasonably near future, not necessarily as measure of value, but to full extent that prospect of demand for such use affects market value while property is privately held.

4. Eminent Domain ⇐136, 138

In land condemnation proceeding in which United States is taking only part of landowner's bundle of rights in subject property, three-step method of analysis is appropriate: first, court should determine the before taking value of property; second, it should determine the after taking value of property lying within easement; and finally, court should determine incidental damages, arising from easement, to any land adjacent to easement.

5. Eminent Domain ⇐200

In land condemnation proceeding landowner bears burden of proving value of taking.

6. Eminent Domain ⇐205

For purpose of land condemnation proceeding, the before taking value of crop land irrigated by central pivot irrigation system instead of traveling gun irrigation system required after governmental taking, which produced about 40 bushels of corn per acre less than central pivot system, was established as $2,400 per acre.

7. Eminent Domain ⇐205

For purpose of land condemnation proceeding, the after taking value of crop land subject to perpetual restrictive easement preventing landowner from irrigating land with central pivot irrigation system and instead limiting use to traveling gun irrigation system, which produced about 40 bushels of corn per acre less than central pivot system, was established as $1,050 per acre as opposed to $2,400 per acre the before taking value.

8. Eminent Domain ⇐149(7)

Government's taking of 120 acres of crop land by limiting landowner's ability to irrigate its property using central pivot irrigation system, and instead limiting irrigation to use of traveling gun irrigation system, which produced about 40 bushels of corn per acre less than central pivot system, also affected 65 acres of land adjacent to easement area and thus total value of taking, measured as of date of taking, included 65 acres and resulted in award to landowner of $233,994.

Donald Daniels and Anne V. Tuuk, Asst. U.S. Attys., W.D. Mich., Grand Rapids, Mich., for plaintiff.

Kurt D. Hassberger, Rhoades, McKee & Boer, Grand Rapids, Mich., for defendants.

OPINION

ENSLEN, District Judge.

This is a land condemnation proceeding in which the United States and the only party claiming an interest in the condemned land, Dukesherer Farms, Inc., dispute the value of the land, or right to use the land, that the United States has taken. The United States has taken 1.87 acres (more or less) of the land in fee simple, and has subjected an additional 102.13 acres (more or less) of the land to a perpetual restrictive easement that limits the landowners use of the property. The Court conducted a three-day bench trial on the matter on June 1st, 2nd, and 3rd, 1987, during which it listened to the testimony of three expert witnesses and received into evidence seventeen exhibits. The United States argues, and sought to prove at trial, that the value of the taking, measured as of the date of the taking (September 16, 1983), was $70,000. Defendant argues, and sought to prove at trial, that the value of the taking, measured as of the date of the taking, was $292,500. For the reasons discussed below, the Court finds that the value of the taking, measured as of the date of the taking, was $233,994, and will enter a judgment in defendant's favor in the amount of $163,994.00, plus statutory interest. The following opinion constitutes the Court's findings of fact and conclusions of law in accordance with rule 52(a) of the Federal Rules of Civil Procedure.

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Background and Factual Summary of the Case

The United States filed its complaint in this matter on September 16, 1983, seeking to condemn portions of defendant's property. In particular, as stated above, the United States requested title in fee simple to 1.87 acres of defendant's property, and sought a perpetual restrictive easement as to an additional 102.13 acres of defendant's property. The United States needs the land to operate and to maintain a VORTAC facility, which the Federal Aviation Administration uses to provide navigational guidance to aircraft. The 1.87 acres taken in fee simple provide a site for the facility and an access road to it. The 102.13 acres subject to a perpetual restrictive easement provide a clear area of noninterference with the facility's signal. The easement essentially precludes the landowner from constructing, operating, or maintaining structures and other objects within the easement area that may interfere with this signal. The landowner can continue to cultivate the land and to raise crops on it, and it can operate within the easement area "[a]ll moving farm machinery (exclusive of irrigation systems) while ... [employed in] plant[ing], fertiliz[ing] and/or harvest[ing] crops." Declaration of Taking, Schedule C, para. b. Defendant does not contest the United States' right to take the subject property, and the parties agree that the complaint accurately describes the easement and the fee interest the United States has acquired.

Contemporaneously with its filing of the complaint, the United States filed a Notice of the Taking and a Declaration of Taking. It also deposited the sum of $70,000 with the Court as its estimate of the just compensation due the defendants. I note here that although the United States named six defendants in its complaint, only Dukesherer Farms, Inc. claims a monetary interest in the property and appeared in court to contest the United States' valuation of the land. On September 23, 1983 the Court ordered defendants to surrender possession of the land to the United States on or before October 23, 1983. On August 25, 1986, the Court, pursuant to a stipulation and agreement entered into by the parties, ordered the Clerk of the Court to release the $70,000 the United States had deposited on September 16, 1983, plus the interest that had accrued on such sum, to Dukesherer Farms, Inc. If the Court finds that the value of the taking is more than $70,000, than it must "enter judgment against the United States for the amount of the deficiency." 40 U.S.C. § 258a; *see also* Federal Rule of Civil Procedure 71A(j).

Before the taking, defendant Dukesherer Farms, Inc. ("defendant") used the condemned land to raise corn. After the taking, defendant can continue to use the land, with the exception of the 1.87 acres taken in fee simple, to raise corn. The parties agree that the highest and best use of the land is for cropland. The parties' disagreements in this matter are twofold. First, they disagree on the number of acres affected by the taking; in particular, by the restrictive easement. Second, they disagree about the taking's effect on the fair market value of those acres. Plaintiff argues that the restrictive easement affects only 120 acres of cropland. It also argues that the easement's effect is to decrease the value of defendant's entire holdings (666.7 acres) by one hundred dollars an acre, leading to a total loss to defendant of approximately $70,000. Defendant argues that the restrictive easement affects 195 acres of cropland. It also argues that the easement's effect is to decrease the value of those acres by $1,5000 per acre, leading to a total loss to it of approximately $292,500.

The parties' disagreement concerning the easement's effect on the land's value is based primarily on their differing understandings of the effect of the easement's restriction on defendant's ability to irrigate its property using a center pivot irrigation system. The easement's height limitations prevent defendant from irrigating a substantial portion of the affected area, if not all of it plus some additional acreage, with a center pivot irrigation system. Instead, it must use a traveling gun irrigation system, which produces about forty bushels of corn per acre less than the center pivot

system. Plaintiff argues that the present value of the loss defendant will suffer due to this restriction is $70,000. Defendant argues that the easement's restriction on irrigation diminishes the value of the land by $1,500 per acre, for a total present value diminution of $292,500. The parties also disagree on the before taking value of the land, with plaintiff arguing that it was $2,100 per acre and defendant arguing that it was $2,600 per acre. The nub of the parties' disagreement on defendants' loss, however, is the monetary effect of the irrigation restriction.

Legal Standards

[1–3] A landowner is entitled to receive just compensation whenever the Untied States takes any of his property for public use. U.S. Const. amend. V; *United States v. 50 Acres of Land*, 469 U.S. 24, 25–26, 105 S.Ct. 451, 452–53, 83 L.Ed.2d 376 (1984). In most cases, just compensation means "the fair market value of the property on the date it is appropriated." *Kirby Forest Industries, Inc. v. United States*, 467 U.S. 1, 10, 104 S.Ct. 2187, 2194, 81 L.Ed.2d 1 (1984); *see also Olson v. United States*, 292 U.S. 246, 255, 54 S.Ct. 704, 708–09, 78 L.Ed. 1236 (1934) (a landowner is entitled to receive "the market value of the property at the time of the taking contemporaneously paid in money"). In determining this fair market value, a court must consider what a rational seller, willing but not obliged to sell, would take for the property, and what a rational buyer, willing but not obligated to buy, would pay for the property, and must take into account "[a]ll considerations that might fairly be brought forward and given substantial weight in bargaining between an owner willing to sell and a purchaser desiring to buy." *United States v. 1,291.83 Acres of Land*, 411 F.2d 1081, 1084 (6th Cir.1969); *see United States v. 760.807 Acres of Land*, 731 F.2d 1443, 1446 (9th Cir.1984). A court also must consider "the highest and most profitable use for which the property is adaptable and needed, or is likely to be needed in the near future." *United States v. 1,291.83 Acres of Land*, 411 F.2d at 1084; *see also United States ex rel. TVA v. Powelson*, 319 U.S. 266, 275, 63 S.Ct. 1047, 1053, 87 L.Ed. 1390 (1943) (the land's fair market value "may reflect not only the use to which the property is presently devoted but also that use to which it may be readily converted"). The Court must consider the highest and best use of the property, either in its current state or for what it is likely to be needed in the reasonably near future, not necessarily "as the measure of value, but to the full extent that the prospect of demand for such use affects the market value while the property is privately held." *Olson*, 292 U.S. at 255, 54 S.Ct. at 709.

[4, 5] This case differs somewhat from the usual land condemnation proceeding in that, with the exception of 1.87 acres, the United States is taking only a part of the landowner's bundle of rights in the subject property. The Sixth Circuit has indicated that in this kind of case, a court should employ a three step method of analysis. First, it should determine the before taking value of the property. Second, it should determine the after taking value of the property lying within the easement. Finally, it should determine the incidental damages, arising from the easement, to any land adjacent to the easement. *United States ex rel. TVA v. An Easement and Right of Way 200 Feet Wide and 3,435 Feet Long Over a Tract of Land in Madison County, Tennessee*, 405 F.2d 305, 307 (6th Cir.1968); *see also United States v. 760.807 Acres of Land*, 731 F.2d at 1447–48 ("[w]hen a portion of a tract of land is taken ... the owner is entitled to compensation for the diminution of the value of the remainder resulting from the taking"; such losses are compensable if "the landowner incurs a direct loss reflected in the marketplace that results from the taking"). The focus of the Court's concern, however, still is to place the landowner "in as good a position pecuniarily as if his property had not been taken." *Olson*, 292 U.S. at 255, 54 S.Ct. at 708. The landowner bears the burden of proving the value of the taking. *United States v. 1,291.83 Acres of Land*, 411 F.2d at 1084.

Before Taking Value of the Property

[6] In accordance with the Sixth Circuit's decision in *An Easement and Right of Way*, the Court will first determine the before taking value of the subject property, on a per acre basis. Both parties' experts examined sales of comparable parcels of property to determine the subject property's before taking value. In addition, defendant's expert, Michael Salisbury, used an income approach to valuation to supplement his comparable sales findings. Both experts agreed that the highest and best use of the land before the taking was as cropland, although defendant's expert further qualified this use by indicating that it was as cropland irrigated by a center pivot irrigation system. Both experienced some difficulty in locating comparable sales, though, and had to make significant adjustments to the sales they did locate to make them truly comparable. They happened, moreover, to have chosen only one common parcel of property for examination.

Plaintiff's expert, Lynn Rush, analyzed twelve parcels of property in deriving his before taking value of $2,100 per acre. The parcels ranged in size from 40 acres to 775 acres, and in sales price from $752 per acre to $2,000 per acre. Mr. Rush made the following adjustments to these parcels to derive a comparable price. First, he adjusted for the time of the sale, which generally resulted in an addition to the sales price. Second, Mr. Rush adjusted for improvements to the subject property by adding to the sales price of the comparable sales parcels to account for the absence of buildings and other improvements. Third, he adjusted the prices to account for the presence or absence of irrigation systems or possibilities; the subject property has both center pivot and traveling gun irrigation systems on it. Fourth, Mr. Rush adjusted the prices to account for the sales parcels smaller sizes. He testified that he believes a smaller parcel of land costs more per acre than a larger parcel. Fifth, Mr. Rush adjusted the sales prices to account for the topography and soil of the comparable sales parcels. Since the subject property is level and has good corn-growing soil, he added to the prices of those parcels that were not as level or did not have as good soil. He also testified that for some parcels, he put adjustments for nontillable acreage and irregular shapes in this category. Finally, Mr. Rush adjusted for the conditions of the sale, taking into consideration whether the sales was an arms length transaction. After making these adjustments, he arrived at comparablesales prices ranging from $2,000 per acre to $2,200 per acre.

Defendant's expert, Mr. Salisbury, examined six comparable sales properties. He stated in his report, and testified at the trial, that he had difficulty locating suitable comparable sales. Consequently he, like Mr. Rush, had to adjust the sales prices of the comparable parcels substantially to derive a comparable price. Also like Mr. Rush, Mr. Salisbury made adjustments for the size of the parcels, their shape and topography, their soil type, and their capacity to be irrigated. He arrived, however, at comparable sales prices ranging from $2,300 per acre to $2,600 per acre. Unlike Mr. Rush, moreover, Mr. Salisbury used only 360 acres of the subject property as his standard for comparison. He testified that he used this smaller parcel because it could be irrigated as one unit, and because the taking did not affect the remainder of the property and hence did not change its value. As the Court will discuss in more detail later in this opinion, it agrees in general with Mr. Salisbury's definition of the affected acreage, and rejects both the United States' contention that it must consider the entire 666.7 acres of defendant's property and its contention that the taking affected only 120 acres of land. I reject the first contention because there is no evidence in the record that the taking affected all of defendant's property. The Sixth Circuit's opinion in *An Easement and Right of Way* indicates that in determining an after taking value, I should consider only the area under the easement and the incidental damage to land adjacent to the easement area. I reject the second contention because defendant has established that the taking affected land adjacent to the easement area.

Mr. Salisbury also conducted an income valuation of the subject property to supplement his market, or comparable sales, analysis. He testified that he did so because of the difficulty he had in finding comparable sales. In his income approach, Mr. Salisbury determined three values for the subject property: (1) its value for growing dryland corn; (2) the additional value contributed by a traveling gun irrigation system; and (3) the additional value contributed by a center pivot irrigation system. The property's before taking value equaled the sum of the dryland corn value and the value contributed by a center pivot irrigation system. From this approach, Mr. Salisbury derived a per acre value of $2,600 before the taking. He determined that land suitable for growing dryland corn has a value of $975 per acre, and that being able to use a center pivot method of irrigation adds $1,625 per acre to the land's value. Based on the lack of comparable sales, Mr. Salisbury determined that his income approach valuation of $2,600 per acre was more accurate than his comparable sales approach valuation of $2,400 per acre.

The Court believes that a before taking value of $2,400 per acre is fair and reasonable to the landowner and the United States. I am not completely comfortable with either expert's analysis. I believe Mr. Rush examined better comparable sales. He did not, however, adequately account for the irregular shapes of some of the comparable sales, or for their poor topography and the presence of nontillable acreage. On comparable LV–3, for example, Mr. Rush made only a $150 per acre adjustment to account for the presence of 39 nontillable acres, comparatively poor soil, and a hilly topography. Similarly, on LV–5 Mr. Rush made a $408 per acre adjustment to account for the presence of 20 nontillable acres (out of 40 total acres) and a somewhat undesirable location. Finally, on comparable LV–1, which is the parcel that Mr. Salisbury also examined, Mr. Rush underestimated the number of acres that had to be cleared of grapes and the cost of clearing them.

Mr. Salisbury, on the other hand, admits that he examined no truly comparable properties and that he had to make significant adjustments to determine a comparable price. For the four parcels that he believed were most comparable to the subject property, moreover, Mr. Salisbury arrived at estimates of $2,300, $2,300, $2,600, and $2,500 per acre. In addition, the Court, as it will discuss more extensively later in this opinion, does not completely agree with Mr. Salisbury's income analysis, although I do find it was a substantially accurate analysis of the subject property's market value. Finally, the Supreme Court has indicated a preference for the comparable sales approach as evidence of a property's fair market value. *See 50 Acres of Land*, 469 U.S. at 30, 105 S.Ct. at 455.

In accordance with the above discussion, the Court has settled on a before taking value of $2,400 per acre. In making this determination, the Court relied in particular on the sale of the parcel of property designated as plaintiff's comparable sale number LV–1 and defendant's comparable sale number 3. The sale price for this 145 acre parcel was $1,700 per acre. One must adjust this price upward because of the presence of grapes that had to be removed, the need to drill an irrigation well, and the lack of improvements. Given those factors, the Court believes the evidence justifies a comparable sale price for this parcel of $2,400 per acre. I cannot fully accept defendant's evidence that it cost the buyer $111,000 to remove the grapes and to drill the irrigation well because it introduced no evidence of the reasonableness of this cost or how it affected the purchase price. Finally, while defendant asserts that Mr. Rush failed to account properly for the comparable parcels' smaller sizes, *i.e.*, he assumed that the smaller parcels cost more per acre because of their size and hence subtracted from the comparable sales figure to account for that difference, Mr. Salisbury also considered the comparable parcels' smaller sizes to be a negative factor, *i.e.*, a factor requiring a minus adjustment, although he did consider the smaller size to require a positive adjust-

ment in terms of irrigation costs. Def.Exh. 3 at 8 (comparable # 4).

After Taking Value of Property Within the Easement

[7] The Court next must determine the after taking value of the property lying within the easement area. The parties agree that the easement affects at least 120 acres of defendant's property, consisting of the 104 acres lying under the easement plus the corner areas formed when the easement area is squared off. As Mr. Rush testified, it is logical to consider this 120 acre parcel, rather than simply the area under the radius formed by the easement, as the affected area because farmland is planted and irrigated in square and rectangular shaped parcels. I therefore will discuss this 120 acre parcel's after taking value in this section, and will discuss in the next section, which covers incidental damages, the additional 75 acres that defendant claims also is affected by the easement.

Mr. Rush determined, allegedly by using a comparable sales analysis, that the after taking value of defendant's property was $2,000 per acre. He arrived at this figure by determining the net present value of defendant's loss due to the taking, which he calculated to be $65,842.69, and dividing that figure by defendant's total acreage of 666.7 acres. The basis for Mr. Rush's determination that defendant's net loss due to the taking is $65,842.69 is set out in plaintiff's exhibit 2, which is an addendum to Mr. Rush's report. As defendant discusses in its post-trial summary of the evidence, the Court can place little, if any, confidence in Mr. Rush's conclusions for a number of reasons.

First, and most significantly, Mr. Rush used a factor of five years at 10%, or 3.79, to discount his calculations of defendants' losses to present value. Both Mr. Salisbury and plaintiff's other expert witness, Dr. Ross, testified that Mr. Rush erred in using a five year loss period. Mr. Salisbury's testimony that the proper time period is thirty (30) years appears reasonable, is not contradicted by any informed source, and is accepted by the Court. Mr. Rush, moreover, used an interest rate of 10% in determining his discount factor. The Court agrees with Mr. Salisbury, however, that a lower discount rate, which more accurately reflects the rate of return in agriculture, is more appropriate. I reject both Mr. Rush's rate of 10% and Dr. Ross' rate of 8.0%. Neither witness is an expert in agricultural economics. I note in particular that Dr. Ross based his rate on the manufacturing sector of the economy; it was not specific to agriculture. Second, Mr. Rush erred in evaluating the economic lives of the different irrigation systems. In essence, he did not consider the difference between a center pivot system's life of 15 years and a traveling gun system's life of six to ten years. Finally, Mr. Rush erred in evaluating the production costs of corn.

Having rejected Mr. Rush's analysis, the Court must determine the effect on the subject property's fair market value of defendant's inability to use a center pivot irrigation system. The parties stipulated in their pretrial order that "[t]he subject property will, using center pivot irrigation, produce 40 more bushels of corn per acre than it will produce using the traveling gun system." Pretrial Order ¶ 7.6. Since the Court already has determined the subject property's value with a center pivot irrigation system, the issue is what is the property's value with a traveling gun irrigation system, which produces 40 bushels of corn per acre less than the center pivot system.

The parties agree that dryland corn property is worth between $800 and $1,000 per acre. As it will discuss shortly, the Court believes that a value of $900 per acre is fair and reasonable. I also believe that absent any evidence of comparable sales of properties irrigated with a traveling gun irrigation system, I should follow Mr. Salisbury's method of determining the marginal value of such a system. As the Court discussed previously, it cannot rely on Mr. Rush's analysis. Done correctly, moreover, his analysis, as defendant demonstrates in its post-trial summary, actually supports defendant's claim. Finally, Mr. Rush did not conduct a true after taking comparable sales evaluation of defendant's property. He simply used six of his before

taking comparable sales and subtracted $100 per acre to account for the alleged diminution in value of defendant's property due to the taking.

In determining the marginal value of using a traveling gun irrigation system, however, the Court cannot accept all of Mr. Salisbury's reasoning. I believe that some of Dr. Ross' criticisms of Mr. Salisbury's factors—specifically, his marginal net cash income/acre figures, his tax rate, and his economic life for a traveling gun irrigation system figure—are valid. The Court acknowledges that plaintiff apparently did not give defendant advance notice of Dr. Ross' testimony. In fact, Dr. Ross testified that he had finished his report only the night before his testimony. I believe, however, that defendant was able to cross-examine Dr. Ross adequately and that it was not significantly prejudiced by his testimony, some of which was important to the case. The Court therefore will overrule defendant's objection to Dr. Ross' report, plaintiff's exhibit 10, and will accept Dr. Ross' report and his testimony.

Dr. Ross had several criticisms of Mr. Salisbury's analysis. He argued that Mr. Salisbury had used an improper tax rate; that he had used an improper cost of funds figure, which led him to use an improper discount rate; that he had used an improper actual yield per acre for center pivot irrigation and an improper market or loan price for corn, and had failed to account for the setaside requirements of the government price subsidy program, in determining his marginal net cash income/acre for the irrigation systems; and that he had used an improper depreciation period for the traveling gun irrigation system. The Court agrees with some of Dr. Ross' criticisms, and has adjusted Mr. Salisbury's calculations accordingly. First, I believe that Dr. Ross' tax rates of 15% for the traveling gun system and 18% for the center pivot system are more accurate than Mr. Salisbury's flat rate of 20%. Second, I believe that Mr. Salisbury should have accounted for the setaside requirement of the government price subsidy program. Defendant does not deny that there is a setaside requirement, but attempts to argue that Mr. Salisbury implicitly accounted for it in his analysis and that the effect would be minimal. The Court agrees that Mr. Salisbury, intentionally or not, accounted in part for the setaside requirement by using 195 acres as his basis for analysis, rather than the total 202.5 tillable acres located in the area arguably affected by the easement. I thus have used a factor of 10% rather than 20% (Dr. Ross' factor) in considering the effect of that requirement. Third, the Court finds that Mr. Salisbury should have used an eight year depreciation period for the traveling gun irrigation system. As Dr. Ross testified, six years appears to be on the low end of the systems' economic life scale.

Using these revised figures, the Court calculated the marginal value of using a traveling gun irrigation system. I used a 5.5% discount or cost of funds rate (6.5% × .85); a yield per acre for center pivot irrigation of 185 bushels, which accords with the parties' pretrial stipulation; and a $2.56 market or loan price for corn, which is what the standard was at the time of the taking. I recalculated the figures using the approach found in appendix C of Mr. Salisbury's report; specifically, the Court attempted to redo the analysis at the bottom of the last page of this appendix using revised figures. Again, I observe that I employed this adjusted analysis because neither party provided expert testimony, based on a comparable sales analysis, of the fair market value of cornland irrigated with a traveling gun system. The Court's revised analysis, which is given in the chart attached to this opinion as appendix A, produced a net present marginal value of $147.97 per acre. The Court also used its corrected figures to revise Mr. Salisbury's estimate of the fair market value of dryland corn. This revision produced a value of $884.00 per acre, which compares favorably with Mr. Salisbury's comparable sales estimates of the value of such land. See Def.Exh. 3 at 8–9 (comparable sales nos. 5 & 6); *infra* app. A (analysis).

From these calculations, and the testimony and evidence produced at trial, the Court has determined that the fair market

value of cornland irrigated with a traveling gun irrigation system is $1,050 per acre. To reach this figure, the Court rounded the value of dry cornland up to $900 per acre, and rounded the marginal value of using a traveling gun irrigation system up to $150 per acre. Finally, as a check on the validity of this analysis, the Court calculated the value of cornland irrigated with a center pivot system using these same revised figures. The resulting value of $2,350 per acre supports the Court's determination that $2,400 per acre is a reasonable price for cornland irrigated with a center pivot system. The Court's calculation is given in appendix B.

Given a before taking value of $2,400 per acre, and an after taking value of $1,050 per acre, the loss to defendant due to the taking for the 118.13 acres of land lying under the easement (120 acres minus the 1.87 acres taken in fee simple) would appear to be $159,475.50. To arrive at a final damage figure, however, the Court also had to consider plaintiff's unrebutted testimony that defendant apparently is using a center pivot irrigation system that reaches at least some of the land under the easement. To account for this factor, admittedly in a rough manner, I adjusted the after taking per acre value up to $1,200, producing a loss to defendant of $141,756. I believe this adjustment is reasonable because it appears from defendant's exhibit 3, page 5, diagram B, that it economically could use a center pivot system to irrigate certain portions of the area under the easement. The final step in the Court's analysis is to determine whether the easement has caused any incidental damage to lands adjacent to it.

Incidental Damages

[8] Defendant argues vigorously that in addition to the 120 acres of land lying under the easement, the taking has affected seventy-five (75) acres of land adjacent to the easement area. This land consists of two parcels: (1) a thirty acre parcel lying northwest of the easement area; and (2) a thirty-five acre parcel lying south of the easement area, between the area and a public road. According to defendant's own expert testimony, the additional affected acreage is 65 acres, not 75 acres. Since the evidence supports only a claim that the taking affected an additional 65 acres of land, the Court will consider the incidental damage to that property.

Based on the evidence introduced at trial, the Court agrees with defendant that the taking affected the fair market value of these additional 65 acres. The United States protests that defendant has not demonstrated that it probably would have irrigated this land with a center pivot system, and that its claim of damage thus is remote and speculative. Mr. Salisbury's testimony, and even to a certain extent the testimony of Mr. Rush and Dr. Ross, indicated, however, that a rational farmer both would consider, absent the taking, using a center pivot irrigation system over the entire tract of land affected by the taking and, given the presence of the VORTAC facility, would not use a center pivot system in the northwest corner alone but rather would irrigate the entire affected tract of land with a traveling gun system. Mr. Salisbury's testimony, with the exceptions already discussed, was credible and reliable, particularly given his experience and training in the field of agricultural economics. Plaintiff also argues that defendant seeks to place itself "in a better position that [it was] before the Omni, even though [it] purchased the property while it was in place and carrying a restriction by way of a lease." Closing Argument at 6. The United States failed, however, to produce evidence regarding this lease at trial or to substantiate its argument that the presence of the lease should affect the Court's valuation of the taking's effect.

The Court thus concludes that defendant has adequately supported its claim that the taking affected an additional 65 acres of land by precluding it from irrigating such land with a center pivot system. As the Supreme Court indicated in *Olson*, the Court can consider this evidence to the extent that it reflects the fair market value of the land. As I already have discussed, a piece of property that can be irrigated with a center pivot system is more valuable,

because it can produce a higher output per acre with less investment and operating costs, than a piece of property that can be irrigated only with a traveling gun system. Defendants are entitled to be compensated, given the rather unusual circumstances of this case, for this depreciation in the fair market value of the 65 acres lying outside of the easement area. As I already have found, the before taking value of this acreage was $2,400 per acre. I find that the after taking value is $1,050 per acre. I do not adjust this figure upward because there is no evidence that a rational buyer would consider using a center pivot irrigation system on this land. Defendant's incidental damages due to the taking thus are $87,750.

In summary, I find that the value of the taking, and thus defendant's compensation, is composed of three elements. First, the 1.87 acres plaintiff took in fee simple is valued at $4,488. Second, the effect of the restrictive easement on the land lying under the easement is valued at $141,756. Third, the incidental damage to land lying adjacent to the easement area is valued at $87,750. The total value of the taking, measured as of the date of the taking, thus is $233,994. Since defendant already has received $70,000 as compensation for the taking, the Court will enter judgment against the United States in the amount of $163,994, plus interest. See 40 U.S.C. §§ 258a & 258e–1.

APPENDIX A

Revised Estimated Value of Dryland Corn Per Acre

$$\frac{\$57.20 \times (1 - \text{Tax Rate}) = 48.62}{6.5\% \times (1 - \text{Tax Rate}) = .055} = \$884.00$$

$57.20 is the revised net cash income/acre for dryland corn, taking into consideration a ten percent setaside. The Court used Dr. Ross' suggested tax rate for traveling gun irrigated corn of .15.

Revised Marginal Value—Traveling Gun System

Depreciation	× (1 − Tax Rate) =	16	× .15 =	2.40
Net Cash Income	× (1 − Tax Rate) =	32.81	× .85 =	$27.89
			Total	$30.29

NPV-Investment

	$128.00
	$ 79.06
	$ 51.51
	$ 33.57
	$292.14

NPV-Income	= $30.29	× 14.53 (5.5% at 30 yrs.)	=	$440.11
NPV-Inves.	=			$292.14
				$147.97

$147.97 marginal value added to $884 dryland corn value = $1,031.97, which is adjusted upward to $1,050.

Based on a depreciation period of 8 years; a tax rate of 15%; and a marginal net cash income/acre of $32.81.

APPENDIX B

Revised Marginal Value-Center Pivot System

Depreciation × (1 − Tax Rate) = 15.04 × .18 = 2.71
Net Cash Income × (1 − Tax Rate) = 143.06 × .82 = 117.31
120.02

NPV-Investment $225.64
$ 95.80
$321.44

NPV-Income = $120.02 × 14.81 (5.33% at 20 yrs.) = $1,777.50
NPV-Invest. = $321.44
$1,456.00

$1,456.06 marginal value added to $884 dryland corn value = $2,340.06.

Based on a tax rate of 18% and a marginal net cash income/acre of $143.06.

JUDGMENT

IT IS HEREBY ORDERED that JUDGMENT is entered FOR defendant and AGAINST plaintiff in the amount of $163,994.00, plus the following statutory interest: $17,350.57 for the period from September 16, 1983 to September 15, 1984; $21,725.08 for the period from September 16, 1984 to September 15, 1985; $16,062.81 for the period from September 16, 1985 to September 15, 1986; and $10,579.40 for the period from September 16, 1986 to the present date, July 24, 1987. The amount of the Judgment as of this date thus is $229,711.86. Interest shall continue to accrue at the rate of $33.80 per day (5.63% on a combined principal and accrued interest sum of $219,132.46 as of September 16, 1986) until the Judgment is paid.

H.H. ROBERTSON COMPANY, Plaintiff,

v.

BARGAR METAL FABRICATING CO., et al., Defendants.

No. C80–1166.

United States District Court, N.D. Ohio, E.D.

Jan. 15, 1987.

Patentee which established competitor's infringement sought to discover products of intervening purchase of bankrupt infringing competitor's assets. The District Court, Dowd, J., held that patentee was not entitled to discover information concerning those products, absent proof of predicate act of infringement by intervenor.

Magistrate's report and recommendation approved.

Patents ⇐292

Patentee which had established competitor's infringement could not discover information concerning products of intervenor, which had purchased competitor's assets following bankruptcy; discovery in absence of proof of predicate act of infringement by intervenor would have chilling effect on acts of intervention by recent purchasers of assets of insolvent compa-

JOURNAL OF REAL ESTATE RESEARCH

Valuing Easements: A Simple Bargaining Framework

*Joseph W. Trefzger**
*Henry J. Munneke***

Abstract. **The literature's guidance on appraising easement values is limited, such as the sometimes unworkable advice to locate appropriate comparables. A simple economic analysis involving applications of bargaining theory (splitting a cooperative surplus) and game theory (anticipating other parties' actions) might provide a viable alternative means of analysis in some easement situations.**

Introduction

A landowner in need of the right to make use of another's land, and a neighboring owner who could provide that right, might express very different views on the sum that should be paid for an *easement*. One reason for diverse easement value estimates is the competing interests involved; a potential buyer typically is motivated to bid less than a potential seller asks, and if there is a dearth of useful *comparable* data based on recent and proximate transactions it might seem impossible to reach a supportable value estimate. Yet if we place the question in the context of economic reasoning, we can gain useful insights into easement valuation and the prices that should prevail for easements purchased in arm's length transactions.

An easement is the right, held by one person or entity, to make limited use of land owned by another person or entity. This type of interest can be created in situations ranging from preserving scenic views to permitting the encroachment of structural improvements, and the rights created are sometimes of a temporary nature. However, a common type of easement involves a permanent right on the part of the owner of one parcel (the *dominant* estate) to gain access to a roadway by traversing part of another, usually adjacent, parcel (the *servient*, or burdened, estate). This type of right is an example of an *easement appurtenant*; it "runs with the land," thereby benefiting all future owners of the dominant estate and burdening all future owners of the servient estate.

The holder of an easement does not have, and will not in the future have, ownership of the burdened property. However, the creation of an easement involves the transfer of property rights, and the interest transferred is of value because it benefits whoever holds the right to the specified use of the servient land. An appraiser may be asked

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to value an easement created through various circumstances, such as the granting of the right to use another's property after private negotiation or the government's condemnation of an easement for the public's or a private party's use. The guidance offered in the literature to analysts who must value these unusual interests tends to be quite general, such as the suggestion to locate suitable comparables, a task that can be very difficult in some circumstances.[1] To deal with some of the inevitable uncertainties, appraisers have developed questionable rules of thumb for use in valuing easements. In some situations, however, a value estimate based on simple economic reasoning might be more defensible and could, in turn, offer guidance on the conditions under which rules of thumb provide useful results.[2] In this article, we develop an easement valuation technique based on simple applications of bargaining theory (splitting a cooperative surplus) and game theory (anticipating other parties' actions). While the method that emerges from our simple economic analysis would not be useful in all easement valuation situations, it might provide another tool for the appraiser to consider.

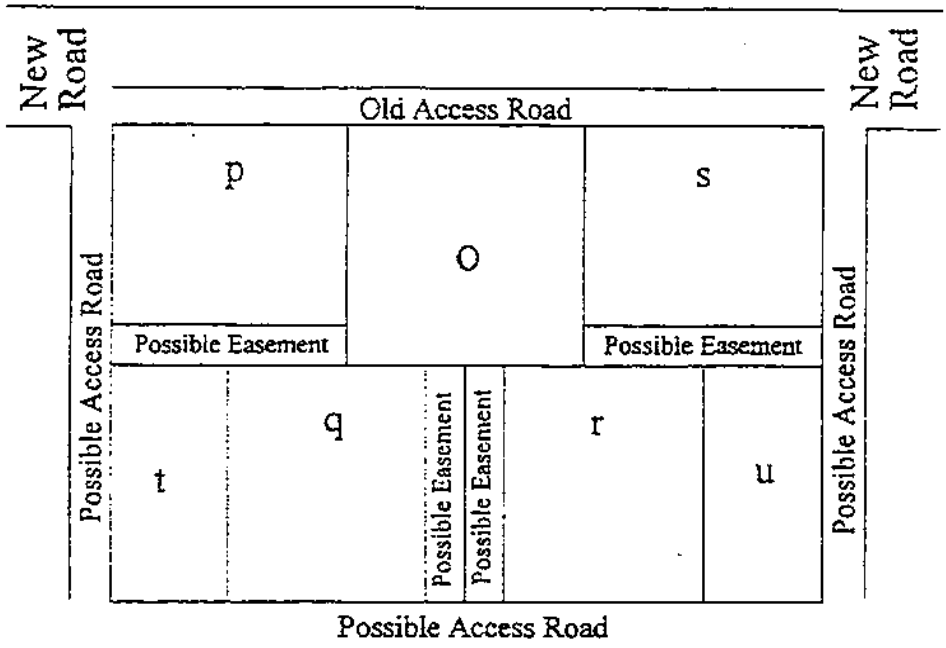
This article is organized as follows. The first section introduces a technique for valuing easements based on the bargaining positions of the buyer and the potential seller or sellers. Results are shown to vary with the number of potential sellers and with the likelihood of collusion among multiple sellers. A second section focuses on the case of sellers whose reservation prices differ. Following the second section are concluding remarks.

Easement Valuation Based on Economic Analysis

Consider the hypothetical case illustrated in Exhibit 1. Land owner O owns parcel o, which is bordered on the north by a public road that is to be upgraded into a multi-lane highway. Because the widened road is to offer limited access, O will no longer be able to drive directly onto it even though it borders on his property. (Under these circumstances, laws in some states would permit O to *condemn* an easement across a neighbor's land, although in other jurisdictions O would have to bargain with one or more adjacent owners.)[3] Alternatively, we might describe a situation in which a reconfigured road system leaves a landowner with access only from one direction, or only across such difficult terrain that the parcel would be essentially worthless without an easement across an adjacent parcel, although the easement would not technically be one of necessity. In any such scenario, O wishes to obtain an access easement so the land can be reached from a public road to the east, west, or south, and the market value of such an easement becomes a crucial question.

What should O expect to pay for the easement? While the literature's typical advice is to base an easement value estimate on comparable sales or a capitalized rent loss, it seems that the needed market information would be difficult to obtain in quantities that would inspire confidence.[4] More specifically, in the absence of an economic analysis, the appropriate amount is likely to be highly uncertain unless a number of reliable comparables exist (such as several recent purchases of access easements in the nearby area, or several recent sales of nearby tracts similar to o, some of which benefited from access easements and some of which did not). All that might seem

Exhibit 1
Possible Easement Configurations: Equal Sized Neighboring Parcels



certain is that if *O*'s access to the property has been terminated, then the value of parcel *o* is essentially destroyed unless access is restored through an easement or other means.

However, the appraiser who proceeds according to economic logic might avoid potential errors, while working toward a more supportable value estimate. For example, the value that the holder of a dominant estate places on an access easement should *not* be a direct function of the square footage that the burdened parcel contains, despite the fact that rules of thumb often are based on percentages of the values of underlying fee interests (for example, treating the easement's value as 25% of the value of a hypothetical fee simple interest in the burdened strip of land).[5] After all, the true benefit of ownership is the claim on *residual values*, which are values that remain after all prior claims (such as those of lenders or repairmen) have been settled. If improved access through the servient estate increases the dominant estate's value by more than the price paid for the easement, then the easement creates a residual value for the dominant estate's owner, but an easement of greater linear distance (and/or greater area) would not likely produce a greater residual value than would the right to make the specified use of a less sizable tract. Indeed, a smaller easement might be *more* valuable to the dominant estate's owner than a larger easement,[6] perhaps because of the difference in travel costs and in ongoing maintenance outlays. Therefore, methods that focus on the value of a hypothetical fee interest in the servient parcel would appear not to measure accurately the value, to a dominant estate owner,

of gaining access to the land. However, to the extent that there are supply-side effects (*i.e.*, to the extent that neighboring landowners wish to restrict the amounts of their estates used by others), the size of the burdened parcel can be of *some* importance in valuing the related easement.

The Bilateral Monopoly Case

Exhibit 1 shows *O* to have neighbors *P*, *Q*, *R* and *S* with properties bordering on public roads. Assume that all four neighboring parcels are equal in size and configuration, but also assume, for the moment, that only *S*'s property *s* offers suitable terrain for the type of easement required by *O*. Because *O*'s parcel is essentially worthless without access to public roads, *S*, with her monopoly position, might appear empowered to extract from *O* a premium approaching the price that *O*'s land would command if it were accessible. For example, if *O*'s parcel would sell for $23,000 provided that it had access to a public road, but is essentially worthless without access, then *O* willingly would pay up to $23,000 to secure a usable easement. If we can assume that the legal and physical costs of rendering the easement usable total $2,000, then *O* would behave rationally in paying up to $21,000 to *S*. Note that even if *O* paid $20,900 to gain access to the public road, he could sell parcel *o* for $23,000 and still net $100 after taking into account all of his costs; without an easement the land would be useless and *O* would net zero. (We assume that *O*'s property is not mortgaged, or that any debt is structured such that *O* could not easily default and pass a valueless tract to the lender.)

Yet *O* is not without bargaining power. Aside from *O*'s desire for access, *S* has no means of extracting value from outside the boundaries of her own property. Each of the two land owners, then, holds a degree of monopoly power over the other. The predicted outcome of such a *bilateral monopoly* is typically viewed as being indeterminate in any specific case, eventually to be determined by the specific parties' unique bargaining powers (Kreps, 1990).[7] However, since neither the seller nor the buyer could be predicted to have stronger bargaining power in the more general case, we might assume for *market value* estimation that *O* and *S* would share any *cooperative surplus* equally. The cooperative surplus can be defined as the enhancement to value generated through the parties' cooperation (Cooter and Ulen, 1997).[8] If we assume that the value of the disutility of the easement (perhaps located on a portion of servient parcel *s* that is unobtrusive with respect to owner *S*'s house or other physical capital) is a nominal amount,[9] then we can compute the cooperative surplus as *O*'s *reservation price* (the maximum price that *O* would be willing to pay in a wholly voluntary transaction) minus *S*'s reservation price (the minimum payment that *S* would voluntarily accept). If *O*'s reservation price is $21,000 and *S*'s is $1,000, the surplus arising from cooperation is $20,000. In a voluntary transaction in which both parties acted in their own best interests and neither possessed unusual bargaining power, then, economic theory would lead us reasonably to expect an equilibrium in which $10,000, representing half of the cooperative surplus, would be added to the lower reservation price (or, equivalently, subtracted from the higher reservation price).[10]

This solution can be generalized. Let V_O represent O's reservation price, V_I represent the negative value of the inconvenience that the owner of a neighboring parcel would suffer *if* the easement ran across the property, V_L represent the loss *actually* suffered by that owner (such that $V_L = V_I$ if the owner's parcel is selected to be the servient estate and $V_L = 0$ otherwise), and n be the number of individuals that constitute the monopoly position on the seller's side ($n = 1$ in the present case of one potential seller). We can compute the price that should be paid to the easement provider, under conditions of bilateral monopoly, as:

$$\frac{V_O - V_I}{2n} + V_L. \tag{1}$$

In our example, V_O is $21,000 and $V_I = V_L$ is $1,000. It thus would be reasonable for O to pay

$$\frac{\$21{,}000 - \$1{,}000}{2 \cdot 1} + \$1{,}000 = \$11{,}000$$

to S for the access easement described, and for an appraiser to estimate the market value of such an easement, under the conditions specified, at $11,000.[11]

Colluding Multiple Sellers

Assume instead that parcels p, q, r and s could *all* provide acceptable (and equally attractive) easements, in terms of the parcels' sizes and configurations. Further assume that each neighboring owner faces the same $1,000 disutility value with certainty, a situation characterized as a game with *complete information* (Kim, 1989).[12] No single neighbor would appear to possess monopoly power over O, but if P, Q, R and S were to collude, then they could *share* the monopolist's profit that accrues to S alone in the previous example. The outcome in any particular case would relate to the participants' individual bargaining powers, but the best estimate for the general case is that the sellers' 50% collective share of the $20,000 surplus would be shared equally after a $1,000 payment had been made to the party whose land would be burdened by the easement.[13] Under these conditions, O would net no benefit from choosing to deal with one particular neighbor rather than one of the others. This collusive situation is, like the prior example, one of bilateral monopoly, with O on one side and a group of potentially colluding *oligopolists* on the other. Assume that the easement will be granted across R's land, r. Referring to Equation (1), but now with $n = 4$ instead of $n = 1$, we see that each of the three non-servient colluders (for whom $V_L = 0$) would receive simply one-quarter of the group's half of the cooperative surplus:

$$\frac{\$21{,}000 - \$1{,}000}{2 \cdot 4} + 0 = \$2{,}500,$$

while R, the owner of the servient property (for whom $V_L = \$1{,}000$), would receive

$$\frac{\$21,000 - \$1,000}{2 \cdot 4} + \$1,000 = \$3,500.$$

(Such a hypothetical transaction would more likely involve O's paying \$11,000 to R, who in turn would pay the requisite share to each of the other colluders.) The equilibrium solution thus would call for O to pay \$3,500 to the neighbor who provided the easement and \$2,500 to each of the other three.

Of course, situations in which actual collusion would be expected are rare. A market value estimate therefore might reasonably be expected to reflect this collusive outcome only to the extent that: (1) the involved parties would seem to be able to evaluate each others' positions; (2) the group of potential sellers is small and cohesive, such that cooperation could not easily be proven by outsiders while failure to cooperate could be punished in some form;[14] and (3) the values of variables in the above equations are easily and objectively measurable. As in the earlier bilateral monopoly case, if collusion were likely it would be reasonable for O to pay a total of \$11,000 for the access easement described, and for an appraiser to estimate the market value of such an easement, if the prevailing conditions were as described, at \$11,000.

Threat of Potential Collusion

Actual collusion, of course, would violate federal antitrust policy, so it is only under fairly rigid conditions that we might expect the bilateral monopoly valuation outcome in the presence of multiple potential sellers. Consider a less extreme case, in which O might reasonably fear that the group *could* undertake maneuverings by which to achieve the effects of collusion without facing detection and legal sanctions, but in which the potential sellers' group is not so cohesive that any would sacrifice their own immediate advantage for the benefit of the others.[15] Given such circumstances, O would exhibit rational behavior in offering the owner of a potential servient estate the individual's $1/n$ fractional share of the cooperative surplus that would accrue to a colluding group, plus the appropriate compensation for inconvenience, *plus* a slight premium alpha (α):

$$\frac{V_O - V_I}{2n} + V_L + \alpha. \tag{2}$$

If, under the conditions illustrated in Exhibit 1, O believed that the group of neighbors could potentially collude, O could offer to purchase an easement from Q for \$3,500 + α, an amount slightly more than the \$3,500 (\$2,500 net of lost utility) that Q could receive if true collusion were to occur. Unless Q were irrational, Q would agree to the transaction because, with equal bargaining power among colluders, Q would receive less than \$3,500 + α (while O would be forced to pay more in total) if Q were to grant an easement in the collusive case. This latter outcome is more likely to be realized to the extent that: (1) the group of neighbors is relatively small and the involved parties are able to evaluate each others' positions; and (2) the values of the V_O and V_I variables in Equation (2) are easily and objectively measurable; but (3) the

group is not cohesive and would have no means of sanctioning the non-colluding seller. Under such conditions, the appraiser's most reasonable estimate of the easement's market value would be some amount slightly in excess of $3,500.

Absence of Potential Collusion

If O feels certain that the neighboring owners will not collude (perhaps because they would fear legal consequences, or perhaps because they simply are not aware of the potential benefits), then each neighbor can be dealt with individually. Because there is more than one neighboring property with suitable access to public roads, there could be no monopoly profit if the neighboring owners would not unite in their efforts. In fact, under such conditions O holds unilateral *monopsony* (only one buyer in the market) power, because each neighboring owner can extract added value from the land only by dealing with O, while O enjoys the benefit of competition among potential easement grantors. The equilibrium outcome in this situation is for each neighbor to offer to sell an easement to O for $(V_i + \alpha) = (\$1{,}000 + \alpha)$, an amount marginally greater than the $1,000 disutility value. The reason is that a slight profit is better than no profit, and any potential seller quoting too high a price would fear being undercut by a less greedy neighbor. As the number of owners with land adjoining o becomes larger and the group becomes less cohesive, the most appropriate estimate of the easement's market value under the conditions described therefore would be an amount slightly in excess of $1,000.

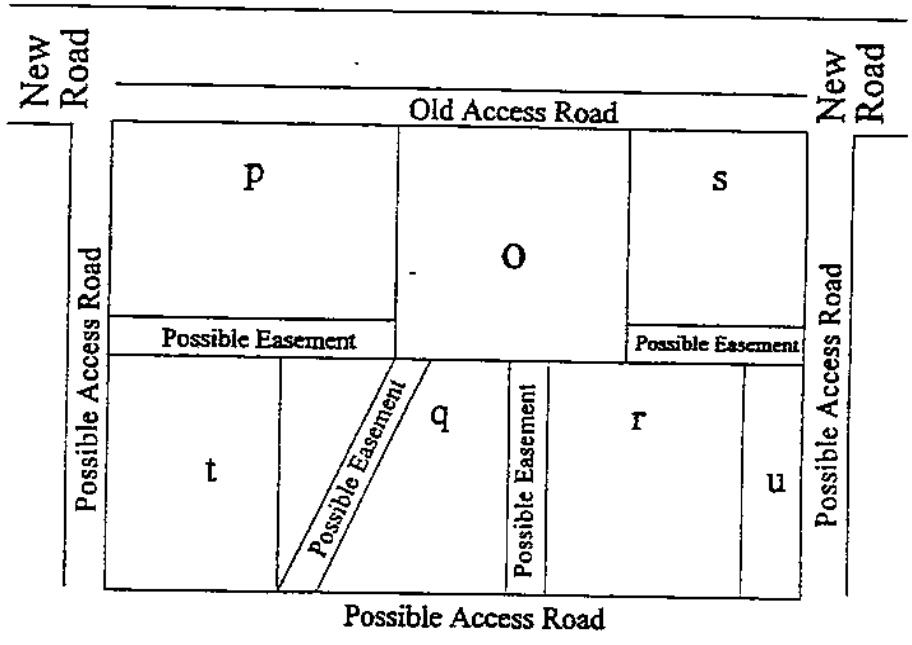
Applying the Model When Sellers' Reservation Prices Differ

Note that Exhibit 1 shows each potential easement to be of equal length and square footage, and that the size of each potential easement is the same proportion of the servient estate of which it is part. Thus, there would seem to be no additional supply-side issues to address; it could be reasonable to assume that all neighbors would place equivalent disutilities on having their properties burdened. What if, however, the equal-sized potential easements presented different disutility values to the owners of the various parcels? The answer is that any attempts at collusion would be likely to break down quickly, and O simply would purchase an easement from the neighbor who offered the lowest price, at a dollar amount just under the *second-lowest* reservation price. Assume, for example, that P, Q, R and S face differing disutility values of $1,000, $1,200, $1,400 and $1,600, respectively, based on various idiosyncratic factors (such as where their homes or other physical capital are placed on their parcels). In a manner analogous to the outcome determined in a recent analysis of agricultural land valuation (Colwell and Yavas, 1994), we can conclude that O most likely would purchase an easement from P at a price slightly less than the $1,200 disutility value to second-best transactor Q (because P would insist on receiving a $1,000 disutility-based reservation price, plus most of the savings that O would realize by dealing with P instead of Q).[16] This result could also be expected if potential grantors' differing disutility costs arose not from idiosyncratic factors, but rather, as would seem logical, because the easements over their parcels covered differing linear distances (the shortest easement would minimize the burden among the servient estate owners while maximizing the benefits for the dominant estate, and

the reverse would be true for the longest easement, so we would expect the shortest easement to be purchased for \$1,200 − α).

If, however, competing potential grantors' disutility costs were *not* directly related to the differing sizes of the potential easements, then *O* would attempt to maximize his own surplus, net of costs. Consider a case, as illustrated in Exhibit 2, in which various idiosyncratic factors cause *P*, *Q*, *R* and *S* to face respective disutility values of \$1,000, \$1,200, \$1,400 and \$1,600 even though parcel *p* offers the longest easement and parcel *s* offers the shortest (an unusual situation, in that the relationship between disutility cost and easement length happens to be inverse for this group of owners simply because of their individual degrees of distaste for having their parcels traversed by outsiders). If the four neighboring owners competed against each other, then *O* could expect to pay slightly more than \$1,600 for an easement from *S*, just under \$1,600 for an easement from *R* (because *R* would insist on receiving the \$1,400 disutility-based reservation price, plus most of the savings that *O* would realize by dealing with *R* instead of *S*), just under \$1,400 for an easement from *Q*, and just under \$1,200 for an easement from *P*. Assume further that *O*'s expected costs (in addition to legal and physical improvement costs, we now must consider the present value of differential travel and maintenance costs relative to those for the shortest potential easement, which is over parcel *s*) would total \$2,000 for an easement over parcel *s*, \$2,500 for an easement over parcel *r*, \$3,000 for an easement over parcel *q*, and \$3,500 for an

Exhibit 2
Possible Easement Configurations: Different Sized Neighboring Parcels



easement over parcel p. The surplus available to O in each of the four cases would be as follows (if we state our slight price differential α as \$50):

	Land Value with Access		Minus Cost to Perfect		Equals Potential Surplus		Minus Easement Purchase Price		Equals Net Surplus
For p:	\$23,000	−	\$3,500	=	\$19,500	−	\$1,150	=	\$18,350
For q:	\$23,000	−	\$3,000	=	\$20,000	−	\$1,350	=	\$18,650
For r:	\$23,000	−	\$2,500	=	\$20,500	−	\$1,550	=	\$18,950
For s:	\$23,000	−	\$2,000	=	\$21,000	−	\$1,650	=	\$19,350

Under the conditions illustrated, O chooses the shortest easement, despite the highest price for purchasing the needed property rights, because of the associated savings in costs to perfect and maintain the easement. Of course, the choice of the smallest sized easement is not a general solution; the outcome in any particular case would reflect the specific cost and benefit figures.[17]

Conclusion

The methods described can serve as useful tools in enhancing analysts' understanding of the economic factors that should motivate buyers and sellers of easements. It should be stressed that the techniques outlined would be most applicable in a specific set of situations and that, even in those situations, establishing some of the needed values relating to the dominant and servient estates might be just as difficult as locating traditional comparables (in our examples, we treat the enhancement to the dominant estate as approaching the underlying fee value and treat the servient owner's inconvenience losses as nominal). Still, appraisers certainly should provide justification when deviating from techniques or results suggested by economic reasoning. For example, if a property owner seeking access to land can obtain an easement across any of a large number of potentially competing properties, then the easement's estimated value (perhaps the measure of compensation in a taking) should be relatively lower to reflect the competitive nature of the supply side of the market. A relatively higher value estimate under these circumstances should be supported by explanations as to why the theoretically expected result should not hold. In a similar manner, the appraiser might wish to defend any value estimate that differs substantially from that indicated by the appropriate splitting of the cooperative surplus in the specified context (*e.g.*, the bilateral monopoly case, the case in which neighboring owners might credibly threaten to collude, or the case in which competition among sellers would be expected).[18] The techniques described can at least assist the appraiser, in some situations, in establishing a reasonable range of values.

The valuation of partial real estate interests is a difficult task. Because circumstances that call for valuations of such property interests as easements are likely to be accompanied by the lack of reliable market data, the parties that seek partial value estimates generally must rely, at least to some extent, on appraisers' intuitive judgments. While a freely negotiating party should have the right to accept any appraisal standards, in the case of eminent domain the government's power places a private land owner potentially at such a disadvantage that reliable standards should

apply as a matter of public policy. Effective standards would encourage each appraiser to support any conclusions reached through "judgment and experience" with tools based on theoretically sound arguments. The appraiser should be encouraged to make use of tools that reflect the underlying economic relationships, and to justify methodology or conclusions that deviate from those that would be suggested by economic reasoning.

Notes

[1] Appraisers with whom we have spoken are not in uniform agreement regarding the difficulty of locating easement comparables. Some indicate that such comparables are few; others suggest that easement comparables can be abundant in utility and other right-of-way situations.

[2] As noted in a recent appraisal text, when market information is insufficient the appraiser must simulate the market's action through an understanding of the underlying economic principles. See Lusht (1996:11).

[3] Condemnation appraisals often are completed in accordance with the before-and-after ("federal") rule or the taking-plus-damages ("state") rule (Eaton, 1995) as measures by which to *infer* the market values of any rights lost. Of course, these rules are not needed if the appraiser possesses tools for directly computing a value estimate for the easement or other rights taken (Hastings, 1985).

[4] Corey (1989) suggests that easement valuation (specifically in the context of condemnation situations) is based more on local convention than on any meaningful analysis.

[5] See, for example, Corey (1989), Green (1992), Pattison (1986) and Wall (1988).

[6] This observation has been expressed by others as well, including Wall (1988:81).

[7] Kreps (1990) discusses this typical view (indeterminate price under conditions of bilateral monopoly; see especially p. 551), along with his alternative insights into bilateral bargaining. The economics of bilateral monopoly are also discussed in Nicholson (1989:635) and many other microeconomics texts. An appraisal-based application is presented in Albert, Banton and Pearson (1982). Generally, under bilateral monopoly the outcome is, in fact, uncertain. Note that in our example we assume that the parties have equal bargaining power because, absent other information, there is no basis for assuming that their bargaining powers are *not* equal.

[8] See Cooter and Ulen (1997:73). The concept of the cooperative surplus was introduced by noted economist Ronald Coase.

[9] An easement need not impose substantial loss on the owner of the burdened land if it is located unobtrusively; subsurface and air rights would presumably remain intact and, as noted by Corey (1989:17), an easement does not interfere with setback requirements or building/land ratios on the servient estate.

[10] Absent an assumption that the parties possess equal bargaining abilities, we could merely specify a range of potential outcomes such that $1,000 < Price < $21,000.

[11] Colleagues have offered intriguing arguments on other economic techniques for easement analysis. One is to require the government to take the full bundle of rights if a negotiated price can not be agreed on when an easement must be condemned. While we appreciate the Coasian bargaining outcome facilitated by this suggestion, we have reservations based both on its lack of suitability in private negotiations and on our belief that payment even of full markert value can undercompensate a private land owner in an eminent domain case. A second suggestion was to base an easement's value estimate on the price the dominant estate's owner could charge for an option to buy the land, which might be combined with an adjacent parcel that has road access. The result of this thought-provoking technique would be consistent with our idea that the easement value should be lower as the number of potential sellers increases. Our reservations on this method are based on the differing option value that would result from the presence of

increasing or decreasing marginal values for acreage. We therefore feel that our technique is more generally applicable than either of these suggestions, although we would encourage further work on the underlying ideas.

[12] See especially pp. 243–44. Under such circumstances, we need not be concerned with delays in individual transactors' pricing decisions or with the accompanying discounting for time value losses.

[13] We are assuming that the transactors' perceptions of the value of the cooperative surplus would not change merely because of the existence of multiple potential easement sellers.

[14] These conditions might prevail if much of the land in the subject area tended to be owned by parties with family ties or longstanding business relationships.

[15] Such individuals' decisions on whether to collude might reflect their degrees of risk aversion, as well, since the cash flow net of inconvenience costs would be a certain $2,500 under collusion (so long as the cartel did not unravel) whereas competing would yield (net of inconvenience costs) an uncertain $2,500 + α. The premium *alpha* (α) is defined later.

[16] The underlying reasoning is consistent with basic discussions in texts on game theory, or on law and economics. Colwell and Yavas (1994) utilize such reasoning in their analysis of agricultural land auctions, although their example involves paying slightly more than the second-highest bidder's reservation price in a two-stage transaction with multiple buyers and one seller. Our example involves paying slightly *less* than the second-*lowest* seller's reservation price in a single-stage transaction (we do not consider the possibility of breaking the easement into smaller easement tracts) with multiple sellers and one buyer.

[17] The various parties' bargaining skills would also have an impact. In this example the sellers do not adjust their asking prices to reflect the differential costs faced by O. If they were to make this adjustment, and if the absolute values of the differences in successive sellers' reservation prices exceeded the absolute values of the differences in costs to perfect, the largest easement would be the most economical for O to buy. If they were to make this adjustment, and if the absolute values of the differences in successive sellers' reservation prices were less than the absolute values of the differences in costs to perfect, only the seller of the smallest easement would be able to charge a price greater than or equal to her reservation price.

[18] The justification could certainly relate to the degree of burden placed on the servient estate, based on such factors as the amount of imposition on the servient estate owner's private activities.

References

Albert, J. D., H. S. Banton and T. D. Pearson, Valuing Real Estate under Conditions of Bilateral Monopoly, *The Appraisal Journal*, 1982, 50, 532–36.

Colwell, P. F. and A. Yavas, The Demand for Agricultural Land and Strategic Bidding in Auctions, *The Journal of Real Estate Finance and Economics*, 1994, 8, 137–50.

Cooter, R. T. and T. S. Ulen, *Law and Economics*, Second Edition, Reading, MA: Addison Wesley, 1997.

Corey, E. A., Easement Valuation Along Highway Frontage, *The Real Estate Appraiser and Analyst*, 1989, 55, 15–9.

Eaton, J. D., *Real Estate Valuation in Litigation*, Second Edition; Chicago: The Appraisal Institute, 1995, 351–70.

Green, G. G., Easement to Fee Simple Value Ratios for Electric Transmission Line Easements: A Common Sense Approach, *The Appraisal Journal*, 1992, 60, 399–12.

Hastings, J., Easement Valuation (Non-Condemnation), *Journal of the American Society of Farm Managers and Rural Appraisers*, 1985, 48, 20–2.

Kim, T., Bidding in Real Estate: A Game Theoretic Approach, *The Journal of Real Estate Finance and Economics*, 1989, 2, 239–51.

Kreps, D. M., *A Course in Microeconomic Theory*, Princeton, NJ: The Princeton University Press, 1990.

Lusht, K. M., *Real Estate Valuation: Principles and Applications*, Chicago: Richard D. Irwin, Inc., 1996.

Nicholson, W., *Microeconomic Theory: Basic Principles and Extensions*, Fourth Edition, Chicago: The Dryden Press, 1989.

Pattison, D., Eight Approaches to the Valuation of Temporary Easements, *Right of Way*, December 1986, 11–2.

Wall, F. K., A Few Yardsticks for Measuring Damages, in Edwin M. Rams, editor, *Valuation for Eminent Domain*, Englewood Cliffs, NJ: Prentice-Hall, 1973, 74–83. Original articled dated 1953.

The authors thank Peter Colwell, Carolyn Dehring and an anonymous reviewer for helpful comments. We also are grateful for comments from participants in the 1997 meetings of the American Real Estate Society, especially John Baen, Hayden Green and Steven Thode.

EMERGING TRENDS AND PARADIGMS IN SHARED RESOURCE PROJECTS

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State Transportation Improvement Plan ("STIP"); the private partner will foot the entire bill if the relocation is caused by a project shown in the STIP.

C. New York State Thruway Authority

Following a Request for Proposals, the New York State Thruway Authority entered into a shared resource agreement in 1996 for installation of six ducts and fiber cable on 540 miles of thruways and expressways. The agreement gives the private partner a 20-year period to maintain and operate the facility and market capacity in the installed conduits to telecommunications firms.

The Authority received a combination of capacity and monetary compensation. The private partner at its cost is providing 16 lit SONET, OC3 fibers to the Authority. The Authority may require the private partner to upgrade the bandwidth to OC12 in the third year of operations if justified by demand. In addition, the New York State Office of General Services has the right to buy eight dark fibers from the private partner at one third of general rates for the 20-year contract term.

The Authority has taken a participation in gross lease revenues from the private partner's leasing of conduit space. The Authority will receive 10% of gross lease revenues between $50 and $88 million in the aggregate, and 50% of gross lease revenues in excess of $88 million.

Like Minnesota, the Authority relied on the RFP process and identification of its needs in order to value its right-of-way. It sent the RFP to 125 firms and received two proposals. It selected one proposal for further negotiation, which led to agreement on the terms of compensation.

The Authority's agreement grants the private partner several exclusive rights. First, the private partner has the right of exclusive access; the Authority will not license any other party to design or install any competing facilities. If capacity is exhausted during the first five years and the Authority elects to add further capacity, the private partner has a right of first refusal respecting the additional capacity. If, however, capacity is exhausted and the Authority elects to add capacity after the first five years, then no exclusivity or right of first refusal applies.

Second, the private partner received the sole right to market and lease available conduit for the full 20-year term of the agreement.

Third, the private partner received the exclusive right to supply, install and maintain fiber and electronics to be owned or used by other telecommunications firms which lease conduit space.

Fourth, the private partner received the exclusive right to construct and install the New York State fiber.

The outcome of the Minnesota petition before the FCC may affect the continuing validity of some or all of these exclusivities.

Real Estate Valuation in Litigation

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CHAPTER 9
MARKET DATA APPROACH TO VALUE

The market data approach is:

> [T]raditionally, an appraisal procedure in which the market value estimate is predicated upon prices paid in actual market transactions and current listings, the former fixing the lower limit of value in a static or advancing market (price wise), and fixing the higher limit of value in a declining market; and the latter fixing the higher limit in any market. It is a process of analyzing sales of similar recently sold properties in order to derive an indication of the most probable sales price of the property being appraised. The reliability of this technique is dependent upon (a) the availability of comparable sales data, (b) the verification of the sales data, (c) the degree of comparability or extent of adjustment necessary for time differences, and (d) the absence of non-typical conditions affecting the sales price.[1]

> The application of this approach produces an estimate of value for a property by comparing it with similar properties that have been sold recently or are currently offered for sale in the same or competing areas. Procedures used to estimate the degree of comparability between two properties involve sound judgment decisions concerning their similarity with respect to many value factors such as location, construction, age and condition, layout, equipment, design, utility, and desirability. The sales prices of properties judged to be most comparable tend to set a range within which the value of the Subject Property will fall. Further consideration of the comparative data should lead to a logical estimate of the probable price for which the property could be sold as of the date of the appraisal. This is the Market Data Value indication.[2]

150TH STORY of Level 1 printed in FULL format.

Anchorage Daily News

April 24, 1998, Friday, FINAL EDITION

SECTION: NATION, Pg. 1A

LENGTH: 842 words

HEADLINE: HOUSE URGES MARKET RATES FOR LAND USE;
FIBER-OPTIC PLANS DELAYED

BYLINE: Robert Kowalski; Daily News Juneau Bureau

DATELINE: Juneau

BODY:

In a highly unusual vote, the House on Thursday directed the Knowles administration to charge ''market rates'' when it awards the use of state land to companies planning fiber-optic cables connecting Alaska's major cities and the Lower 48.

The decision could mean millions of dollars in additional revenue to the state and dramatic increases in what the companies must pay to use rights of way on Alaska lands and tidelands for the telecommunications projects.

In the flurry of activity Thursday, Knowles also agreed to extend until mid-May the deadline he had set for the Legislature to take action on the policies guiding what the state charges for the use of its rights of way. The original deadline was today.

Both decisions, by the Legislature and the administration, have significant potential ramifications for the fiber-optic cable projects.

The decisions could affect a bitter competition between rival telecommunications companies planning the cable lines. The administration's and Legislature's actions could eventually affect what Alaskans pay for telephone service.

''The governor did ask this Legislature for direction,'' said Rep. Pete Kott, an Eagle River Republican who proposed the measure the House approved. ''There's no reason I can think of that we should prolong moving this . . . We have, if not a moral obligation, a constitutional obligation.''

The House approved a ''sense of the House'' measure, a parliamentary procedure it almost never uses that by itself is not legally binding.

Along with urging Knowles to use market rates in approving right of way use, the measure calls for the governor to set up a task force to study the rates that various state agencies charge for use of their land.

Five different agencies currently manage state land, and each has its own policy on what to charge for right of way access.

Anchorage Daily News April 24, 1998, Friday,

Knowles told the Legislature in March that his administration would approve permits pending for cable projects at existing state rates unless the lawmakers took action by today.

His action in postponing that deadline means permits for hundreds of miles of cable lines that would cross lands administered by the Department of Natural Resources won't be awarded until at least next month.

Knowles press secretary Bob King called the Legislature's use of a sense of the House measure an ''extraordinary'' move.

He said he thought the Legislature should study the policy question of state land use further.

The action by the House, in a 28-9 vote, came swiftly. While bills and resolutions often take weeks or months to be approved, the measure passed Thursday was introduced early in the day, debated and passed before the end of the evening.

The House rejected a proposal to move the measure to the House Special Committee on Telecommunications for further study. Lawmakers also rejected a motion by Rep. Joe Green, R-Anchorage, to delay action on the measure until today or Monday, so legislators could review it.

''We don't accept amendments of any consequence the day we meet,'' Green said. ''At least give us the opportunity to review it overnight.''

Top Knowles administration officials spent much of the afternoon on the second floor of the state Capitol -- where the House and Senate meet -- and lobbyists for competing cable projects lined the halls as legislators worked through differing drafts of the measure the House considered.

Ron Duncan, chairman of General Communications Inc., the Anchorage telecommunications firm building one of the proposed fiber-optic cable lines, called the House activity Thursday a ''circus atmosphere.'' He said he wondered whether lawmakers understood what they were voting on.

Duncan also said he was unclear what the language of the measure passed would mean for his company's project.

''The issue is, what's market value,'' he said. ''It could be wildly open-ended. It's not clear to me, and I don't think it's clear to them what it meant.''

The issue of what the state charges has centered in recent weeks on permits pending for fiber-optic cable projects that need right-of-way access to DNR lands.

The Legislature has held two hearings on the matter, and numerous lawmakers, telecommunications companies and industry groups have written letters taking one side or the other on the issue.

In his March letter to the lawmakers, Knowles said the state would charge the existing rate of about 6 cents a foot for that right of way, unless the Legislature directed him otherwise.

Anchorage Daily News April 24, 1998, Friday,

GCI, one company awaiting permit approval for the DNR right of way, has argued the existing rates are fair and appropriate.

But Australian investors in a competing project, known as Alaska Fiber Star, already had agreed to pay much higher rates for an exclusive right of way for their fiber-optic cable along land controlled by the Alaska Railroad.

The Alaska Fiber Star rate is roughly 50 cents a foot. Fiber Star officials have argued that awarding the lower rate to the GCI project would give it a competitive advantage.

LANGUAGE: ENGLISH

LOAD-DATE: April 25, 1998

PG&E CORRIDOR RENTAL ANALYSIS

In this section we address the Mission Statement reporting requirements for the earlier described PG&E corridor. All conclusions regarding the PG&E corridor are shown in a table on the last page of this section just before the PG&E Addenda.

Market Rent to PG&E Without Sublease Rights

The first step is to estimate the base market rent to PG&E without considering any sublease rights. We first estimate market rent assuming all the improvements (conduits, fiber optic cables, manholes and vaults) benefit only the Golden Gate National Recreation Area (GGNRA).

Valuation Assuming All Improvements Benefit GGNRA. As earlier described PG&E occupies 34,693 linear feet of corridor space extending through the Presidio, across the Golden Gate Bridge, and through Fort Baker. We now estimate the market rent for this corridor assuming all improvements benefit GGNRA regardless of what party incurred the costs of installing the conduit systems.

The best rental comparable is the earlier described AT&T sublease from Pacific Bell. This Presidio segment of the Pacific Bell easement corridor near Crissy Field is over 1.5 miles. The current rent is $6.34 per linear foot per year. Such rent is charged for all Pacific Bell conduits in San Francisco. The conduit space on the Bay Bridge, before the formation of the Bay Bridge Consortium in 1995, had also been leased at $6.34 per linear foot by Pacific Bell. Another good comparable is the minimum $6.00 per linear foot per year rent charged for passage through the three mile long BART tube between San Francisco and Oakland.

BART representative, Joe Baybado, said the highest rent he knows of for bridge crossings or other "choke points" is $10.00 per linear foot charged for the Holland Tunnel in New York City. A study provided by Nicolas Dempsey, the San Francisco Port Authority real estate officer, shows conduit rent for East Coast bridge crossings ranging from nominal fees to $5.00-$13.00 per linear foot per year; the upper-end rents are for short segments between Manhattan and New Jersey. Most charges are nominal. The isolated high-end rate, well above the other charges, was based on annual CPI adjusted figures compounded since 1952. The comparables provide a bracket of rents but do not provide a basis for direct comparison due to dissimilarities in location and other factors.

The entire PG&E corridor distance equates to 6.6 miles. The Golden Gate Bridge and indeed the Presidio and Fort Baker represent an extended choke point through which conduits must pass to link San Francisco and Marin Counties. We estimate market rent for the PG&E corridor assuming that all improvements benefit GGNRA at $6.34 per linear foot per year. This is equivalent to the maximum linear

foot rent charged for prime Bay Area locations and San Francisco Bay crossings.

We consider the $6.34 per linear foot conclusion to be the market rent as of the first year. Thereafter rents should increase annually based upon Consumer Price Index adjustments in similar manner to the rental increases for conduit space through the BART tube as earlier discussed.

The $6.34 per linear foot per year rental conclusion is the starting rent for the subject PG&E corridor. Multiplied by 34,693 linear feet, this equates to a first year rent of $219,954.

Valuation Assuming Improvements Benefit Installing Parties. PG&E installed portions of the 34,693 feet of conduit through the Presidio and Fort Baker. Representatives of the company with whom we met estimate that of the total corridor distance, it installed 21,303 linear feet. The balance, 13,390 linear feet, would represent those portions installed by the US Army through the Presidio and Fort Baker plus the conduit length across the Golden Gate Bridge.

We present a second set of distances based on estimates by GGNRA representatives. GGNRA estimates that only 18,044 feet of the Presidio conduit was installed by PG&E. Breakdown of the two sets of estimates from PG&E and from GGNRA are shown on the following page.

In this section we value the corridor segments with conduits installed by PG&E differently than we value the segments with conduits installed by the US Army. (We hereafter refer to GGNRA instead of the US Army as the installing party.) Under this scenario, we appraise the corridor segments wherein conduits were installed by PG&E as if they were land only, whereas we appraise the corridors in which conduits were installed by GGNRA (US Army) as an existing conduit system. The rental value of the easement corridor as improved with the conduit system is much higher than the rental value of the easement corridor for the land only as was earlier discussed.

"across-the-fence" (ATF) method. This method is considered unreliable for this appraisal. It is more applicable to heavy intensity easements such as for underground pipes and high power transmission lines. The "rent per linear foot" method directly applies the conclusions from analysis of comparable data, i.e., market rent per linear foot, to the lengths of the subject easements.

Easements for fiber optics, television cables, electrical wires, and telephone wires crossing private and public properties are commonly conveyed between the property owners and the parties needing or desiring utility extensions from one point to another. Many such easements do not even specify easement width but rather only the easement length. The lease or sale of these private easement rights serve for comparison analysis as the basis for estimating the fair market rent of the subject easement rights.

Market Data

There are two sets of market data useful for analyzing the rental values of the subject corridors on a price per linear foot basis. The first set includes easement transactions involving only the rights to use the land. The second set involves easement conveyances for not only the rights to use the land but also the rights to use existing conduits, cable, manholes, and vaults. For the first set of easement comparables, the tenants or grantees would be responsible for the trenching and installation costs to provide for the conduit system. There are many examples, particularly involving railroad rights-of-way, whereby the owners of the land install the conduits and other equipment but are then reimbursed for the cost of such installation by the easement tenant or grantee.

Rent for Land Only. The rents and prices for the first set of easement comparables, those reflecting the rights to use the land only, are considerably less than those rents and prices for the existing conduit systems. Rental comparables for the property rights are shown in the table on the following three pages. This table shows prices and rents for easement rights to land only conveyed between the years 1983 and 1997. Of the 30 comparables, eight are rentals ranging between $.31 and $1.80 per linear foot per year. Analysis of these 30 comparables is helpful in determining the impact of various factors of value such as 1) changing economic/market conditions, 2) location, 3) flexibility of easement use, 4) what may physically occupy the corridors, 5) length of the easement corridor, and 6) restrictions on the use of the corridor.

It is also important to note from the table the wide variation in prices resulting from imperfect knowledge. Much of the data presented in the table were very difficult to ascertain, much more difficult than sales or leases of conventional real estate. Not only were there difficulties to understanding what physically was

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Fourth, the private partner received the exclusive right to construct and install the New York State fiber.

The outcome of the Minnesota petition before the FCC may affect the continuing validity of some or all of these exclusivities.

Risk of relocation generally is borne by the Authority where no third party is liable for the costs. There is an exception for specified bridge crossings, where relocation costs not chargeable to a third party will be shared equally.

D. Florida Department of Transportation

Florida is embarking on a shared resource project every bit as ambitious in scale and sophistication as the Minnesota project. The project is a cooperative effort among FDOT, the Dade County and Tampa - Hillsborough Expressway Authorities and the Florida Department of Management Services. The agencies are nearing completion of an RFP for a backbone fiber optic network throughout the state's tolled interstate highways and optional state road elements, a length of 2,000 miles. The State seeks 36 dark fibers, 12 for DMS and 24 for FDOT, plus a menu of enhanced equipment and enhanced services at no charge or at competitive rates, as well as maintenance by the private partner. FDOT will use its fiber to support ITS and other agency purposes. DMS will use its fiber for the telecommunications needs of the various governmental agencies it serves, with the expectation of cost reductions.

The private partner will own and manage the remaining network fibers for commercial use. While it is not yet decided whether to grant the private partner an exclusivity, the agencies expect to suspend further access to their right-of-way for additional fiber installations so long as capacity is available on the partner's network. It is possible that the private partner will receive a right of exclusive access coupled with an obligation to sell or lease excess capacity to all interested telecommunications firms on a nondiscriminatory basis, similar to the Minnesota arrangement. Here, too, the outcome of Minnesota's FCC petition will directly affect the structure of Florida's project.

As with many agencies, valuation of right-of-way for fiber optic use has been a perplexing issue for the agencies. To date the agencies have made no effort to systematically assess value. While a valuation study in some circumstances can produce a range of value as guidance for maximizing compensation, in this case the agencies have instead focused on identifying their telecommunications needs as the baseline to evaluate responses to the RFP.

The agencies intend to place all risk of network relocation on the private partner. Depending on the term of the private partner's maintenance obligation, this risk could be so substantial as to affect the value of any compensation that proposers offer in response to the RFP.

E. Illinois State Toll Highway Authority

This 275 mile fiber optic project departs from the shared resource paradigm and bears the characteristics of a turnkey design-build-manage contract. The contract, executed in March 1998 after the Authority issued its third RFP for the project, calls for the contractor to design and construct a 24 fiber network, with 96 fibers in some locations, and purchase and install electronics, for a fee. Construction is to start in May 1998. The Authority will pay all design and construction costs and own the network outright.

381ST STORY of Level 1 printed in FULL format.

Chicago Tribune

December 3, 1985 Tuesday, DU PAGE EDITION

SECTION: CHICAGOLAND; Pg. 4A; ZONE: D

LENGTH: 699 words

HEADLINE: HIGH TECH HELPS CITY MINE TUNNELS

BYLINE: By Thomas M. Burton.

BODY:

A telecommunications firm would pay the city sharply increased fees for the use of abandoned railway tunnels beneath the Loop under a tentative agreement revealed Monday.

City officials hope the accord will signal a significant new revenue source. Under the proposed arrangement, Chicago Fiber Optic Corp. plans to install a three-mile network of high-speed data transmission cables next year in a maze of little-known tunnels in Chicago's downtown.

The tunnels, used to transport freight and coal in the first half of this century, had been largely forgotten since the 1950s.

The company agreed to pay the city a minimum amount of about $300,000 in 1987, when the system will be in full-scale operation. That beginning annual fee would be about 17 times a previous, and controversial, $17,264 annual payment. Under that prior arrangement, the firm had reserved space, but not placed cables, in the tunnel system.

The annual payments to the city are expected to reach "well over $150,000 in 1986" and may rise as high as $800,000 "within two to three years" if the firm's business increases as expected, said John Lucas, the firm's president.

"We're taking a lemon and making lemonade out of it," said Paul Karas, the city's public works commissioner, who has pushed within the Washington administration for the more lucrative new agreement. "Those unused tunnels are being converted into high-speed channels of light-wave communication."

And city officials say that at least eight other firms are seriously exploring the use of the tunnel system or other city rights-of-way for installation of the high-speed communications equipment, known as fiber-optic cables.

Fiber-optic cables are bundles of hair-thin glass fibers through which light impulses carry computer data, phone conversations and video images at extremely high speed and efficiency. A pair of such fibers can transmit the text of Webster's unabridged dictionary across town or cross-country in less than a second.

The Tribune reported last March that telecommunications executives and others in the industry had strongly criticized the relatively low payments received by the city since 1982 for use of the tunnels.

Those telecommunications industry critics had pointed out the huge capacity of the relatively new technology, as well as the heavy concentration of businesses in the Loop that could be reached through the grid of tunnels. The old tunnel system extends from roughly Halsted Street to Michigan Avenue and from Illinois Street to 15th Street.

Chicago Fiber Optic will allow high-speed data transmission between

businesses in the Loop, or it could hook up such businesses to fiber-optic systems linking Chicago to other cities, Lucas said.

The firm's chief competitor, Illinois Bell Telephone Co., already has a competing system, called NovaLink, in its telephone conduits beneath the Loop.

The terms of the agreement were reached last week after months of negotiations that involved Karas, City Comptroller Ronald Picur and Lucas.

The city and the company have reached an agreement on price terms, though some negotiations remain on what Picur called "secondary terms and conditions." He, Karas and Lucas agreed that the two sides intend for the company to begin work in the tunnels in the near future.

"The city has an initialed agreement by a representative of Chicago Fiber Optic that we are planning on having all parties adhere to," Karas said. Before the agreement can be a finished contract, however, it must be approved by the Chicago City Council.

"Rather than basing the price on the archaic per-linear-foot method, we are using a unique principle in telecommunications called spectrum-based pricing," said Karas. Basically, this method calculates payments to the city based on the communications capacity of the fiber-optic cables.

The agreement also provides that payments to the city will be 8 percent of the company's gross revenues if that percentage is higher than the amount under the other formula.

LANGUAGE: LANGUAGE

LOAD-DATE: September 15, 1993

SHORT FORM APPRAISAL

PURPOSE OF THE APPRAISAL:

The purpose of this appraisal is to estimate the fair market value of the issuance of one 14,144± lineal foot long by 10-foot wide, Perpetual Non-Exclusive Fiber Optic Cable Right-of-Way Easement to Nevada Bell, on Bureau of Reclamation (BOR) land. The subject is located within the Nevada Department of Transportation, U. S. Highway 50A right-of-way (ROW) alignment, located near the northeast corner of Lyon County, Nevada, between the town of Fernley, Nevada, and the Churchill County border and within the BOR Newlands Project Area.

IDENTIFICATION OF THE PROPERTY:

The subject property is identified as follows:

1. A portion of the NE¼ of Section 18, Township 20 North, Range 25 East, Mount Diablo Base and Meridian (MDB&M). (Approximately 2,976± feet long by 10 feet wide, running through the eastern half of Section 18 within the U. S. Highway 50A ROW)

2. A portion of the S½ of Section 16, Township 20 North, Range 25 East, MDB&M. (Approximately 5,370± feet long by 10 feet wide, running along the entire length of Section 16 within the U. S. Highway 50A ROW)

3. A portion of the S½ of the S½ of Section 14, Township 20 North, Range 25 East, MDB&M. (Approximately 690± feet long by 10 feet wide, running through the most westerly portion of Section 14 within the U. S. Highway 50A ROW)

4. A portion of the N½ of the N½ of Section 24, Township 20 North, Range 25 East MDB&M. (Approximately 4,232± feet long by 10 feet wide, running through most of Section 24 within the U. S. Highway 50A ROW)

5. A portion of the NE¼ of the NE¼ quarter of Section 30, Township 20 North, Range 26 East, MDB&M. (Approximately 876± feet long by 10 feet wide, located in the northeast corner of Section 30 within the U. S. Highway 50A ROW)

The full legal descriptions are enclosed.

DATE OF THE APPRAISAL:

The date of the valuation is June 20, 1994.

ESTATE BEING APPRAISED:

The estate being appraised is for the market value of the issuance of one perpetual non-exclusive government underground utility easement to Nevada Bell.

ASSUMPTIONS AND LIMITING CONDITIONS:

The appraisal report has been made with the following general assumptions:

1. No responsibility for the legal descriptions or for matters including legal title considerations is assumed. Title to the properties is assumed to be good and marketable unless otherwise stated.

2. The property is appraised free and clear of any or all liens or encumbrances unless otherwise stated.

3. Responsible ownership and competent property management are assumed.

4. The information furnished is believed to be reliable. However, no warranty is given for its accuracy.

5. It is assumed that there is full compliance with all applicable Federal, State, and local environmental regulations and laws unless noncompliance is stated, defined, and considered in the appraisal report.

6. The grantee will ensure that its facilities will not interfere with the existing or proposed facilities of the United States.

7. Nevada Bell and/or their contractors; will not have the right to prospect and carry on developments for oil, gas, coal, or any other minerals on said land.

8. The United States retains the right of the officers, agents, employees, licensees, and permittees of the United States, at all proper times and places, freely to have ingress to, passage over, and egress from all of said lands, for the purpose of exercising, enforcing, and operating and maintaining any Federal project thereon.

9. All engineering is assumed to be correct. The plot plans and illustrative material in this report are included only to assist the reader in visualizing the property.

10. It is assumed there are no hidden or apparent conditions on the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or the arranging for engineering studies that may be required to discover them.

11. This value estimate is based on the absence of any hazardous substances or harmful environmental conditions, including the presence of asbestos. No responsibility is assumed by the appraiser for any such condition, loss in value, or for any expertise or engineering required to discover or correct any such condition.

12. It is assumed that all applicable zoning and land use regulations and restrictions have been complied with, unless a nonconformity has been stated, defined, and considered in the appraisal report.

13. It is assumed that all required licenses, certificates of occupancy, consents, or other legislative administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the estimate contained in this report is based.

14. It is assumed that the utilization of the land and improvements are within the boundaries or property lines of the property described and that there are no encroachments or trespasses unless noted in the report.

15. It is assumed that the grantee is not permitted to make any extension or alteration of the fiber optic cable placed on, below, or above the surface of the BOR land without prior written concurrence of the United States.

TERMS AND CONDITIONS OF THE EASEMENT:

The United States will convey permission to Nevada Bell through the issuance of one government underground utility easement, which is a non-exclusive easement. The easement will be used by Nevada Bell, for construction, operation, and maintenance of a buried fiber optic cable. The easement will contain a 0.42-inch round, 24-fiber quad optic cable with six circuits each, half will be operable and the other half will be for future expansion and/or repair of existing lines. Additional cable may only be laid after the purchase of additional right-of-way.

GENERAL DESCRIPTION OF THE IMMEDIATE NEIGHBORHOOD:

The subject property is located in the northwestern portion of the State of Nevada, in Lyon County, between approximately ½ mile east of the Highway 95A and Interstate 50A interchange in the town of Fernley and approximately ½ mile west of the Churchill County border. The area to be licensed is 10 feet wide by a combined 14,144± lineal feet long, or 2.68 combined miles, or 3.24 acres over 5 individual strips of BOR land within the Newlands Project Area.

The Newlands Project was constructed in the early 1920's to enable development of irrigated agricultural lands in the Truckee River and Carson River watersheds. Facilities constructed or acquired for use in delivering water and power to the Newlands Project service area include Lahontan Dam, Reservoir, and Powerplant, Lake Tahoe Dam, Derby Diversion Dam, Carson River Diversion Dam, approximately 100 miles of main canals, 310 miles of distribution laterals, 345 miles of open drains, and related minor facilities. The project currently serves about 3,100 water users through approximately 1450 farm turnouts.

The Bureau of Reclamation (BOR) also administers a substantial amount of withdrawn and acquired lands, including three important refuges–Stillwater Wildlife Refuge and Management Area, Carson Lake and Pasture, and Fernley Wildlife Management Area.

In 1926, the Truckee-Carson Irrigation District assumed responsibility for operation, maintenance, and certain administrative activities for the Project under the terms of a repayment contract. Terminated by the Secretary of the Interior, that contract was replaced in 1984 by Temporary Operation and Maintenance Agreement between Truckee-Carson Irrigation District (TCID) and the United States of America. Since that time, TCID has continued to operate the Project under terms requiring close adherence to the Operating Criteria and Procedures for the Newlands Project.

Fallon Indian Reservation is located to the east and the Pyramid Lake Indian Reservation to the northwest. Formerly the Southern Pacific Railroad line and now the Atchison-Topeka-Santa Fe Railroad line and right-of-way (ROW), runs north of and parallel to the subject property and within a ¼ mile away. The Bureau of Land Management (BLM) controls and manages about 51 percent of Lyon County. The majority of private lands lie to the north and in the central sections of Lyon County. There are a couple of established grazing ranches in the surrounding area, however, after seven of the last eight years being drought years, the vegetation is insufficient to support full time grazing practices, only intermittent ones.

The subject's immediate neighborhood topography, ranges from nearly flat to rolling hills with elevations of 4000+ feet. The vegetation consists of chemise, sparse sage, and cheat grass. The zoning and use of the subject and it's general vicinity is RR-5 (Rural Residential with General Agricultural Uses, and 20-acre minimum), which is currently being sold as 20-acre rural homesites. The towns of Fernley and Dayton are presently, two of the fastest growing areas in the State of Nevada.

HIGHEST AND BEST USE:

Highest and best use is the most reasonable, probable, legal, and profitable use that supports the highest present value of vacant land or improved property, as defined, as of the date of the appraisal.

In order for the subject property to fulfill its highest and best use, that use must meet the following criteria: physically possible, appropriately supported, and financially feasible.

City or county zoning practices do not have jurisdiction over the subject property and is only limited to land uses that are approved by the Federal Government. The project alignment is on federally owned road right-of-way that is located within the Nevada Department of Transportation U.S. Highway 50A, right-of-way alignment in Lyon County, Nevada. The uses for this narrow strip of land are limited because there is not sufficient setback from the roadway. The proposed use for fiber optic easement is a legal use that has been approved by the Federal Government. Therefore, a physically possible and appropriately supported use for the existing government road right-of-way would be for the installation of fiber optic cable conduit.

In today's market, Fiber Optic Easements are one of the most expensive utility right-of-ways that exists. This use meets the final criteria, financial feasibility, because fiber optic cable provides the highest net return, therefore, the highest and best use of the subject property as improved, is estimated to be fiber optic right-of-way. Further, the proposed use generates more revenue than if the land was sold "fee simple", for agricultural or rural residential uses which are the predominant surrounding use.

With absolute consideration to the above definitive of highest and best use, the appraiser, after considering the characteristics of the property, neighborhood, and immediate vicinity of the subject, it is my opinion that the highest and best use of the subject property is for fiber optic right-of-way.

MARKET INFORMATION:

For the most part, grantors of fiber optic easements are the railroad companies. The grantees are communication companies such as AT&T, MCI, Sprint, Pacific Bell, and so on. The appraiser made an attempt to contact as many sources in the industry as possible, in an effort to determine a fair market value range for fiber optic right-of-way easements.

The first fiber optic cable to be installed was along the Washington D.C. to New York, New York Amtrack right-of-way line. Construction was started in 1984 by MCI and completed in 1985-86, however, the technology was in existence much sooner than that.

In the last 10 years or so that the fiber optic industry has been in existence, the methodology of choice for determining value of fiber optic ROW easements by government agencies, has been to look at those values as if they were any other utility or ROW easement. Historically, utility or ROW easements have been valued by using the "Straight Fee Approach", a schedule using fixed fee rates; "The Across The Fence Approach", which means that the easement's value is at least worth the value of the land it crosses; "A percentage of Fee Approach", which encompasses taking a certain percentage of the fee value of the land it crosses; and "The Before and After Approach", appraising the land value prior to the fiber optics being installed, then appraising the land value as though the optics were already installed, and then arriving at a conclusion of value from the two.

However, Fiber Optic Easements are not valued in the market by any of the above aforementioned methods. Many sources in which this appraiser has spoken with, conclude that severe competition exists in the industry because of supply and demand influences have driven the value of this type of easement to levels way beyond the fee simple value. In many instances, the grantor will negotiate for their own line within the negotiated cable or for a private cable to be used only by themselves in lieu of a contractual dollar amount for that easement. Many grantors still negotiate for both.

Grantors do not allow for additional cable to be installed, repeated later, or for transmission capacities to be increased. Once that line has been installed, the grantee is not allowed at some later time to retrieve a smaller cable and replace or install additional cable to increase capacity without paying for a new additional easement fee first. Maintenance and repairs are allowed; however, maintenance is rare and almost non-existent. If and when it ever does occur, repair is just a matter of closing down the bad fiber line within that cable and reconnecting the usable portion of that line with one of the excess fibers that are usually available for repair or future use.

Communications company sources verified that it is much more cost effective to purchase existing ROW to install their fiber optics and pay what the market demands instead of applying an expensive acquisition campaign to acquire ROW through individual landowners property and/or alternate routes. For the most part, communication companies are driving up the cost of ROW easements because of their highly competitiveness and the enormous income stream they enjoy which in turn makes it feasible for them to pay what the market will bear for those right-of-ways. However, some ROW specialists from the communications

industry, stated that existing railroad ROWs are not all what they may appear. It has been found that when dealing with the railroad industry, communication companies must carefully research the right-of-ways in their entirety. Some sections of that ROW may have had their rights previously negotiated away to some other entity. This leaves the grantee with only portions of what they originally believed to be a whole ROW and in turn, forces them into negotiating inflated fees for the connecting rights of that ROW. Both the railroads and the communications industry are quite critical regarding each other's practices, calling each other at best, difficult to negotiate with.

For comparison, a 24-fiber optic cable today, is capable of transmitting approximately 24,000 individual conversations simultaneously per pair of fibers or about 300,000 calls at full capacity, whereas a conventional 3-inch coaxial copper cable, is capable of carrying only 32,400 conversations at one time. Larger fiber optic cables have the capacity to carry 1,000,000 or more calls simultaneously per cable.

One industry source told this appraiser that fiber optic cable being utilized at full capacity in a metropolitan or highly desired area can generate income upwards to $100,000,000 a day; a cable operating at half capacity can make half that amount a day; and a similar cable located in a remote rural area like that of the subject, operating at half to full capacity, can still generate millions of dollars of revenue as well. A 24-fiber optic cable, similar to that which will be installed under or on the subject property as a feeder line, can generate hundreds of thousands of dollars of revenue a day, but if it is a backbone line or main line, it has the capacity to generate much more.

The width of fiber optic easements vary throughout the industry and you would be hard pressed to find two that are the same. Industry sources whom this appraiser spoke with, stated that in most instances, a grantee will try and negotiate for at least a 20-foot wide easement to accommodate their equipment during the installation of the cable using the "Plow or Plough Method". The "Plow or Plough Method" is a term used to describe the actual installation process frequently used throughout the industry for burying cable beneath or next to a road or rail right-of-way. This process consists of a vehicle containing a large industrial saw or pulling one, which is capable of cutting through asphalt and/or various types and degrees of soil and rock approximately 24 to 48-inches deep and only inches wide. Another vehicle following, then drops the cable in the hole and still another vehicle follows covering the hole up with dirt and then the small strip is paved over. This whole procedure

is completed in a short amount of time so that the traffic on the highway is not impacted for very long. Sources in the industry verified that this method of installing fiber optic cable ranges between approximately $2.00 a lineal foot and $9.00 a lineal foot inclusive of engineering costs. The degree of difficulty in the soil being trenched of course, determines which end of the range the cost will lie.

In many cases where the easement width is too narrow for the contractor to manipulate his machinery, language conveyed for the temporary widening in the contractual agreement is usually added to accommodate the equipment during the installation process only. As soon as the job is completed however, the width of the easement reverts back to the width that was initially agreed upon in that contract.

BASIS OF VALUATION:

Throughout the industry, the accepted norm is for the easement documents which convey right-of-entry, include in that instrument, a confidentiality clause with language prohibiting both the grantor and the grantee from disclosing easement values; however, some sources were willing to reveal these values verbally over the telephone.

Sources from Union Pacific Railroad, Southern Pacific Railroad, and the Nevada Department of Transportation, quoted a value range in the market from $1,000 per lineal mile ($0.19 per lineal foot) to a high of $50,000 per lineal mile ($9.47 per lineal foot) for a perpetual non-exclusive fiber optic easement. A representative from the communications industry in Nevada, told this appraiser that Atchison-Topeka-Santa Fe Railroad in Nevada, which owns the railroad ROW parallel to the subject property, had quoted his company a 1-year contract for $5,000 or $0.63 per lineal foot per year for the ROW easement to install their 8,000 lineal feet of cable. This would equate to $165,000 a lineal mile for a perpetual (50 year) easement. When the communications company balked, the railroad came back and tried to re-offer them a $2,500 or $0.31 per lineal foot per year deal plus, half interest in the capacity of the cable itself. As we spoke, the communications representative was still looking elsewhere for his easement.

In retrospect, the appraiser felt that some of these values he was quoted, although believed to be reasonably valid, appeared unusually high because of special circumstance variables that may have played a major role in their final determination; therefore, these high values

were not considered in the value range of this appraisal report because this appraiser felt that they were not indicative of the overall market. After final review of all the acquired values received by conversing verbally with various industry representatives, this appraiser felt that the values that would most help in determining the overall market range of the subject would be somewhere near $0.38 to $1.52 a lineal foot.

As difficult as it was to acquire a value of ranges verbally from the industry, trying to obtain any physical documentation of those range values was much more difficult to ascertain. This also was due to the confidentiality clauses written to protect disclosure of those values to outsiders of the negotiation process. However, like the above verbal data received, the appraiser was able to obtain some comparable physical documentation from the industry as well. The three comparable perpetual easements discussed below were furnished by AT&T.

NON-EXCLUSIVE PERPETUAL FIBER OPTIC RIGHT-OF-WAY EASEMENT SALES

Grantor	Width in Feet	Length in Feet	Length in Miles	Total Cost	Cost per Lineal Foot	Date
1. Longview Fiber Co.	20.0'	61,884'	11.7 mi.	$25,290	$0.41	8/01/87
2. Cooley	16.5'	19,000'	3.5 mi	$15,010	$0.79	4/15/91
3. Union Pacific RR	10.0'	1,123,584'	212.8 mi	$1,447,040	$1.29	2/25/88

Comparable easement No. 1 and No. 2, are part of the same project and are located near Warm Springs Dam, which forms Lake Sonoma, in a rural section of northwestern Sonoma County, California. Both of these comparables are non-exclusive perpetual easements. Comparable easement No. 3, is located in rural areas of Colorado and Wyoming for a total of 212.8 lineal miles. This easement's alignment is within an existing railroad right-of-way. Sections of it, share some very similar and distinctive characteristics with those of the subject such as topography, soils, vegetation, access, use, etc.. This easement is also a non-exclusive perpetual easement.

The above comparable physical data received from AT&T, will also help serve to establish a market value range for the subject at somewhere near $0.41 to $1.29 per lineal foot. The widths of fiber optic easements vary considerably throughout the industry, however, these three comparable easement widths are considered similar to that of the subject.

Factors within the fiber optic industry that affect value are:

1. Demand - Some geographical areas are more convenient for specific networks;
2. Available Transmission Capacity - What income can the grantee generate;
3. Shared Right-of-Way - What values does the grantor want in return;
4. Location - Values increase in populated metropolitan areas;
5. Length of Easement - Value decreases as length increases;
6. Easement Restrictions - Ability of grantor to terminate right-of-way.

In order for specific routes of a fiber optic project to become necessary, there are two items that have to be determined. First, there has to be a relationship between two desired points of contact and secondly, their location within the fiber optic network.

On the date of the property inspection, fiber optic cable signs were not visible to the appraiser. Without further data, this would indicate that demand for this route is low; however, in this case, the planned linkup is between Fernley, Nevada, and the Churchill County border (the project is eventually going to linkup with Fallon, Nevada), but the subject can be realistically completed using three routes. The proposed route which is the subject of this report is more convenient than the alternate routes.

The first alternate route is the railroad ROW which runs parallel to the subject property, approximately ¼ mile or less to the north. This alternate route proves more costly to construct because its topography is more irregular and current data suggests that negotiations for railroad right-of-way has proven more expensive than the norm to obtain. The second alternative route would be to cross very irregular topography on both private and public lands. The costs associated with negotiating several easements versus negotiating a few, plus additional construction costs associated with installing cable across raw unimproved land would most likely prove to be cost prohibitive. The proposed route's topography is somewhat irregular; however, the cable will be installed under existing road

right-of-way. This is evidence that indicates the demand for this route is high. Demand for a fiber optic route is the primary determinant of value.

The grantees of fiber optic right-of-ways whom have available transmission capacity within their cable, possess the ability to sell, lease, or use those excess lines as a negotiating tool with other communication or right-of-way companies in exchange for a percentage of their transmission revenues and/or in exchange for present or future right-of-way easements. The subject's non-exclusive easement, permits the grantee a license to install one 24-fiber cable, half of it's capacity will be in use immediately, and half of the capacity will be used for future expansion and/or maintenance. The subject contractual easement does not express or define language which dictates to the grantee, what their extra available lines may be used for. Fiber optic cable rarely if ever needs servicing, so it is assumed that at the very least, half of the excess fibers of the subject cable will be available for additional revenue generating purposes. This evidence indicates that the availability of excess transmission lines within the subject cable exists and therefore, it can be considered a primary determinant of value as well.

Grantors of fiber optic easements possess the capability to negotiate or barter their ROW space for present or future income and/or operating needs. Some of the revenue generating options available to the grantor may be for the negotiation of space within existing conduits, for their own transmission cable, for their own line within a grantee's fiber optic cable, for shared revenues from the grantee's income stream that they do business with, and for many other revenue producing and/or operating uses available to them not covered in this appraisal. The subject property's grantor is the Bureau of Reclamation (BOR). U. S. Government agencies like BOR, negotiate easements and licenses for and in the name of the U. S. Government and not the agency. When negotiating easements for space within their right-of-ways, BOR's major objective is to preserve ROW for the U. S. Government's future needs. BOR, being an agency of the government, is not permitted to sell or barter for revenue generating purposes for personal gain. Therefore, the subject property's potential for generating ROW income streams can be considered as somewhat limiting as a determinant of value in this appraisal.

The location of a fiber optic cable is important in determining the value of right-of-way. Heavily populated metropolitan areas with regular topography, command more for fiber optic ROW than rural areas with irregular topography. The subject's topography is irregular and in a rural area.

The length of right-of-way is also determinant of value. There is an inverse relationship between distance and value, as distance increases the value decreases. The subject is approximately 2.68 combined miles in length which is relatively short when compared to other projects that involve over 100 miles.

The two previously discussed value ranges for the subject area are, $0.39 to $1.52 a lineal foot, acquired from verbal conversations from within the industry, and $0.41 to $1.29 per lineal foot, obtained from physical documentation received from AT&T. These two ranges reflect all the above aforementioned six factors that influence value except easement restrictions or the termination clause, which is the ability of the grantor to terminate the contractual right-of-way. The right-of-way the Government is granting to Nevada Bell is a subsurface ROW with minimal disturbance to the surface. The possibility of relocation or termination of the fiber optic cable in the event of Nevada Bell not adhering to any of the subject easement's contractual restrictive or terminating language and/or in case of national emergency, is minimal. Therefore, the termination clause will be considered for determinant value accordingly.

This appraiser spoke with several right-of-way specialists and negotiators from various government agencies, the communication and railroad industries, and from private right-of-way consulting firms. The appraiser received physical documentation from AT&T and value ranges from their competitors. He spoke with engineers who design the fiber optic systems, contractors that install them, technicians whom maintain, service, and expand them, and communication specialists from within the U. S. Government. After gathering and closely evaluating all the criteria, the six factors that influence value, and arriving at two value ranges, the overall range of value that best typifies the subject area is $0.50 to $1.50 a lineal foot for fiber optic right-of-way easements.

Of the six factors that affect the value of fiber optic easement, demand affects it the most. After evaluating demand for the subject's route, this appraiser considers this value to lean toward the top of the value range.

The available transmission capacity of the subject cable, even though it possesses a maximum of 50% availability and is capable of generating hundreds of thousands of dollars per day in potential income streams, it does not possess the earning capabilities of a direct line running through a metropolitan area. Therefore, it's value is considered to fall somewhere in the middle of the subject's value range.

The shared right-of-way factor contributes limited value to this appraisal because the grantor, being the U. S. Government, can only negotiate for the market value of the subject's fiber optic easement and for present and future transmission ROW needs of the government. They cannot however, negotiate for percentages of a grantee's potential income stream or barter for monetary gain in any way. Therefore, this value is considered to land somewhere in the low to middle of the subject's value range.

The location of the subject is a linkup between Fallon, Nevada, and Fernley, Nevada. It is not in a metropolitan area with regular topography, but in a rural area with irregular topography. Therefore, it's contributing value to the subject falls in the low to middle range as well.

The length of the easement is 2.68 miles in length, very short in comparison to most easements. Because of this, it's value tends to be more expensive. This factor's value should be placed somewhere in the middle to high end of the subject's range.

The restrictions or termination clause factor of the subject, contributes moderately to the subject's value range because it's risk or possibility of termination is minimal, therefore it falls somewhere in the middle of that range.

CONCLUSION OF VALUATION:

Based on the above information, it is my opinion that the value of the subject easement is $1.05 per lineal foot.

14,144±/lineal foot x $1.05 = $14,851

SAY $15,000

In conclusion, $15,000 is reasonable and fair compensation for a 2.68 mile long by 10-foot wide strip of non-exclusive fiber optic easement for a period of 50 years. This concluding value represents a one time installation with the ability to operate and maintain the fiber optic cable.

CERTIFICATE OF VALUE:

I hearby certify that I have no personal interest or bias with respect to my conclusion of fair market rental value as developed for the fiber optic easement in this appraisal report or the parties involved. I further certify that I have no interest, past, present, or prospective, in the subject property which would affect my opinion in the final evaluation of this subject report. In my opinion, the subject perpetual easement is valued at $15,000 as of June 20, 1994.

Michael A. Adams, Appraiser

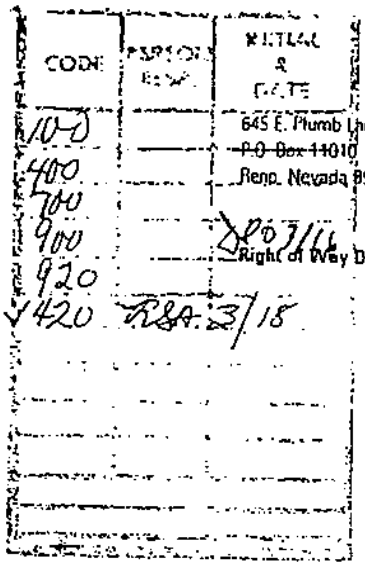
NEVADA BELL
A Pacific Telesis Company

645 E. Plumb Lane, Room C154
P.O. Box 11010
Reno, Nevada 89520
Right of Way Dept.

MAR 16 1994

BUREAU OF RECLAMATION
LAHONTAN BASIN PROJECTS OFFICE
RECEIVED

March 9, 1994



Edward J. Solbos, Jr., Project Manager
Lahontan Basin Area Office
Bureau of Reclamation
P.O. Box 640
Carson City, Nevada 89702

Dear Mr. Solbos:

This letter is to amend the Nevada Bell request dated February 15, 1994 for placement of fiber optic cable within U.S. 50A across Bureau of Reclamation lands.

This amendment will eliminate reference to Section 29, Township 20 North, Range 26 East, M.D.B.& M. as Bureau of Reclamation land to be occupied.

The Bureau of Reclamation lands now effected are as follows:

1. A portion of the Northeast quarter of Section 18, Township 20 North, Range 25 East, M.D.B.& M.

2. A portion of the South half of Section 16, Township 20 North Range 25 East, M.D.B.& M.

3. A portion of the South half of the South half of Section 14, Township 20 North, Range 25 East, M.D.B.& M.

4. A portion of the North half of the North half of Section 24, Township 20 North, Range 25 East, M.D.B.& M.

5. A portion of the Northeast quarter of the Northeast quarter of Section 30, Township 20 North, Range 26 East, M.D.B.& M.

Expeditious handling of this amended application would be appreciated since our construction is scheduled to start June 1, 1994.

Should you have any questions do not hesitate to call Ted Beyer collect on 916-885-8270.

Thank you for your cooperation and understanding in this matter.

Yours truly,

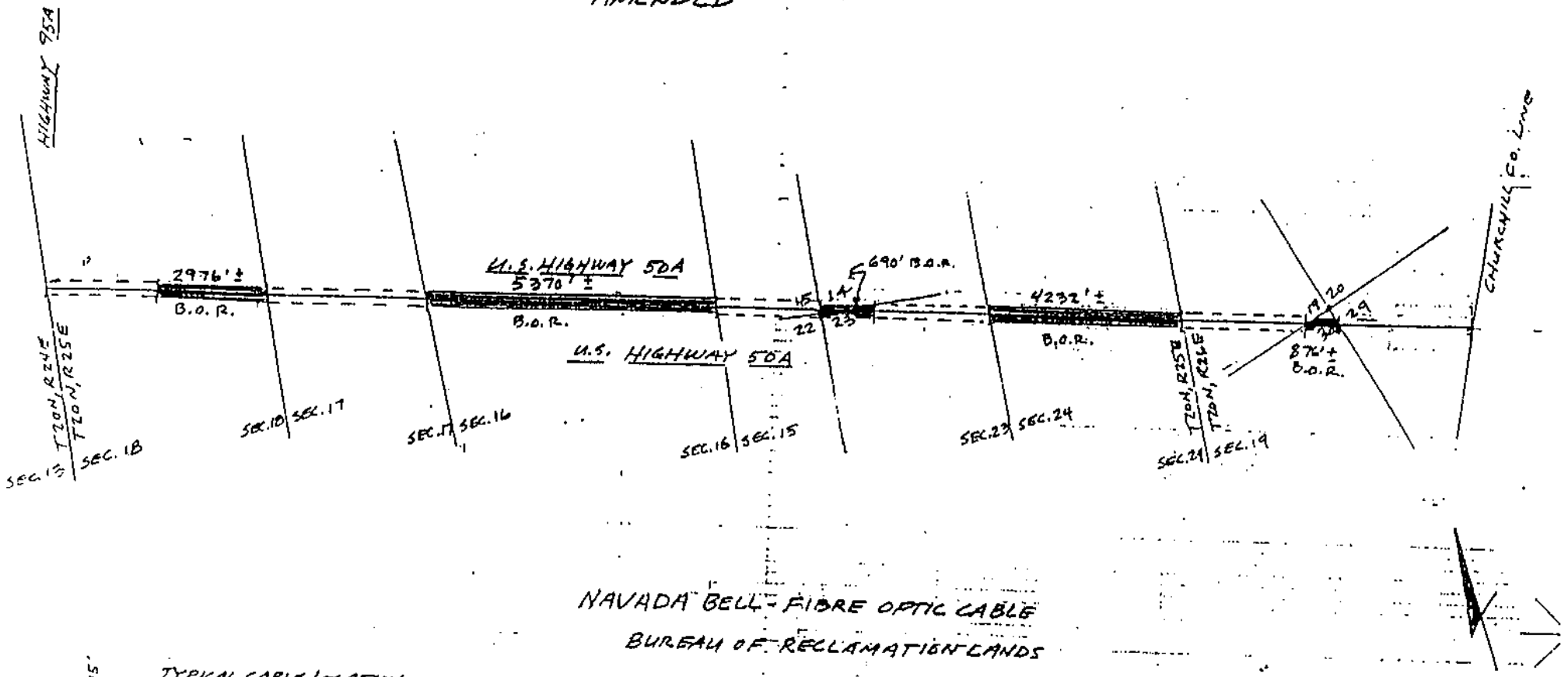
D L. Carmichael

D. L. (Debbie) Carmichael
Right of Way Supervisor

PACIFIC BELL
NEVADA BELL CO.

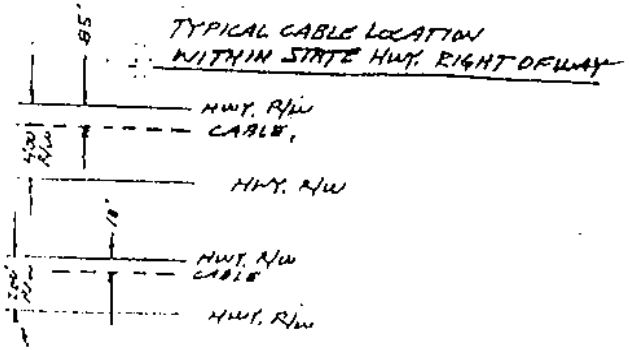
EXHIBIT A

"AMENDED"



NAVADA BELL - FIBRE OPTIC CABLE

BUREAU OF RECLAMATION LANDS



LEGEND:

= BUREAU OF RECLAMATION LANDS (14144'±)

= PRIVATE LANDS

3134
874

CONST. ARC _____ DATE COMP _____

GEO/CO _____

ERCH _____

ENGR _____ TEL _____

ENGR ARC _____

TYPE OF CONST _____

RD/EST NO _____

85TH STORY of Level 1 printed in FULL format.

April 1, 1999 Thursday ALL EDITIONS

SECTION: NEWS; Pg. 014

LENGTH: 424 words

HEADLINE: Firm to pay Pike $ 50M for use of right-of-way

BYLINE: By Laura Brown

BODY:
Massachusetts Turnpike Authority officials yesterday clinched a $ 50 million fiber-optics deal with the Colorado firm that recently hired away the head of the $ 11 billion Big Dig.

Former Big Dig Project Director Peter M. Zuk, who took a job as vice president for Level 3 Communications in Boulder four months ago, was specifically excluded from negotiations on the deal, Turnpike Chairman James J. Kerasiotes said after the board vote.

"We view this as a tremendous opportunity for the turnpike as a non-toll source of revenue," Kerasiotes said.

The contract allows Level 3 to lay 10-18 pipes of fiber-optic cable known as "innerducts" along the right-of-way of the 135-mile-long turnpike in exchange for annual and up-front payments to the authority.

Masspike inked a similar deal with Oklahoma-based Williams Communications last week.

Level 3, a spinoff of major Big Dig contractor Peter Kiewit & Sons, is racing to lay a coast-to-coast fiber-optics network to compete with existing phone companies for lucrative Internet business.

Laying cable in the turnpike corridor allows the firm to avoid cutting complex agreements to cross through other communities, property and highways.

Level 3 will pay Masspike $ 2 million up front and annual payments of $ 735,000 per year for each innerduct of fiber optic cable laid in the turnpike right-of-way, officials said.

The deal calls for the up-front payment one year after signing the lease - when construction is slated to be complete.

It requires the company to activate the second innerduct within three years and the third one within six years.

"There's no pain, no strain associated with this," Kerasiotes said, adding the companies are being encouraged to do their construction work at the same time, so the right-of-way is not dug up twice.

The deal does not include any rights to lay fiber-optic cable in the Sumner, Callahan or Ted Williams tunnels, or along the Central Artery.

Masspike officials were "very concerned" about Zuk's role as head of construction for the firm and insisted he be excluded from the negotiations, Kerasiotes said.

In early February, Level 3 officials assured Masspike lawyers that Zuk would not be involved with the deal.

"I have, without ambiguity, instructed Peter that he will not in any way, either directly or indirectly, participate in, or attempt to influence, the discussions with the (turnpike authority) or (the Massachusetts Highway Department) with regard to this matter," Level 3 Senior Vice President Daniel P. Caruso wrote.

LOAD-DATE: April 01, 1999

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION

Vera J. Hinshaw, Vera J. Hinshaw Family Limited Partnership, and Generation Homes, L.L.C., on behalf of themselves and all others similarly situated, Plaintiffs,	)	
v.	)	Civil Action No. IP99-0549-C-T/G
AT&T Corp. and AT&T Communications, Inc., Defendants.	)	

CERTAIN INDIANA "TELECOMMUNICATION CABLE" CLASS SETTLEMENT AGREEMENT

TABLE OF CONTENTS

The Plaintiff Settlement Class, by and through the undersigned Settlement Class Counsel, and AT&T Corp. and AT&T Communications, Inc. ("AT&T") hereby enter into this Settlement Agreement (the "Agreement") providing for settlement of the claims described below, pursuant to the terms and conditions set forth below, subject to the approval of the Court.

WHEREAS Settlement Class Counsel have prosecuted and are continuing to prosecute on behalf of property owners a number of lawsuits arising out of the installation, occupation, maintenance, and use of fiber optic or other telecommunication cables ("cable" or "telecommunication cable") on property occupied at one time or another by railroads and utilities;

WHEREAS on August 21, 1998, a nationwide class action was certified against AT&T in Indiana in Hamilton County Superior Court Number 1 in *Vera J. Hinshaw, et al. v. AT&T Corp., et al.*, Cause No. 29D01-9705-CP-308 (*Hinshaw*);

WHEREAS on August 21, 1998, Settlement Class Counsel were appointed by the Indiana Hamilton County Superior Court Number 1 in *Hinshaw* to represent the described class of landowners;

WHEREAS on September 18, 1998, AT&T removed the *Hinshaw* case to this Court;

WHEREAS the parties to this Agreement (the "Parties") have agreed that those claims of the various members of the certified class relating to property abandoned by railroads can be resolved on a state-by-state basis;

WHEREAS on April 21, 1999, Settlement Class Counsel filed this Indiana statewide Class Action Complaint (the "Complaint") on behalf of Vera J. Hinshaw; Vera J. Hinshaw Family Limited Partnership, Generation Homes, L.L.C., and others similarly situated;

WHEREAS AT&T has denied and continues to deny Plaintiffs' claims in the Complaint and other similar actions, has denied any wrongdoing or liability to Plaintiffs of any kind, and has raised numerous affirmative defenses;

WHEREAS Settlement Class Counsel have conducted a thorough examination and investigation of the facts and law relating to the matters set forth in the Complaint;

WHEREAS the Parties have engaged in extensive, arm's-length negotiations extending for a period in excess of one year regarding the settlement of Abandoned-Property Claims in Indiana;

WHEREAS, after analyzing the facts and law applicable to Plaintiffs' claims, and taking into account the burdens, risks, uncertainties, and expense of litigation, as well as the fair, cost-effective, and assured method of resolving claims of the Settlement Class under this Agreement, the undersigned Settlement Class Counsel have concluded that this Agreement – offering, among other things, net compensation benefits averaging $45,000 per linear mile of abandoned railroad corridor -- is fair, reasonable, adequate, and in the best interests of the Settlement Class;

WHEREAS AT&T has similarly concluded that this Agreement is desirable in order to reduce the time, risk, and expense of multiple-claim litigation, and to resolve finally and completely the Abandoned Property Claims of the Members of this Settlement Class; and

B. **Settlement Notice and Administrative Costs; Establishment of Administrative Account**

1. AT&T shall be responsible for the reasonable costs of administering this Settlement and providing the Court-approved Notice to Class Members. These costs shall be paid out of a separate Administrative Account, to be established by the Claims Office (or a Court-appointed escrow agent). At AT&T's option, the Administrative Account shall be established as a Qualified Settlement Fund within the meaning of Section 468B of the Internal Revenue Code of 1986, as amended, and all rules and regulations thereunder.
2. AT&T shall make an initial deposit of $300,000 (three hundred thousand dollars) into the Administrative Account, and shall make such additional deposits thereafter as the Court deems necessary for the reasonable expenses of administering the Settlement. In evaluating the need for additional deposits, the Court shall consider, among other things, any future amounts that may be deposited into the Administrative Account from the Claimant Account pursuant to Section V.C.4 below.
3. The Parties understand and agree that some of the costs of administering the Settlement and assembling necessary information for providing Notice have been incurred prior to execution of this Agreement. Such costs nonetheless shall be treated as administrative expenses and shall be reimbursable out of the Administrative Account.

C. **Class Counsel Fees and Expenses**

1. AT&T shall pay the reasonable fees and expenses of Settlement Class Counsel as awarded by the Court. Settlement Class Counsel, however, shall not seek from the Court a cash award of fees and expenses in excess of $15,000 per linear mile of the approximately 80 miles of Abandoned Property listed on the Compensation Schedule attached as Exhibit B, and AT&T shall not object to an award of fees and expenses in that amount.
2. The Parties understand and agree that Settlement Class Counsel may seek an interim award (or awards) of fees and expenses, which shall be payable by AT&T upon approval by the Court; provided, however, that AT&T shall not be required to pay any such fees and expenses unless and until the Order and Judgment is Final. Moreover, AT&T's total maximum obligation for Settlement Class Counsel's fees and expenses over the duration of this Agreement is the $15,000 per linear mile limitation stated in paragraph 1 above.
3. Settlement Class Counsel also reserve the right to seek from the Court non-cash compensation in the form of beneficial ownership of a portion of any Corridor Entity that may be established as described in Section VI below.

V. NET CASH BENEFITS

A. **Generally**

1. There shall be three categories of net cash benefits under this Agreement: Current Landowner Benefits, Prior Landowner Benefits, and Other Landowner Benefits.
2. The Claims Administrator shall be responsible for reviewing and evaluating Class Member claims for Current, Prior, and Other Landowner Benefits in accordance with Sections VII through IX below and the other provisions of this Agreement.

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION

VERA J. HINSHAW, VERA J. HINSHAW FAMILY LIMITED PARTNERSHIP, and all others similarly situated Plaintiffs	)	
-v-	)	CAUSE NO. IP99-0549-C H/G Indianapolis, Indiana September 17, 1999 9:00 a.m.
AT&T CORP., and AT&T COMMUNICATIONS, INC. Defendants	)	

Before the
HONORABLE DAVID F. HAMILTON

OFFICIAL REPORTER'S TRANSCRIPT OF HEARING
(EXCERPT - CONCLUDING REMARKS BY THE COURT)

APPEARANCES:

For the Plaintiffs: Henry J. Price
PRICE, POTTER & MELLOWITZ
The Hammond Block Building
301 Massachusetts Avenue
Indianapolis, IN 46204
and
Neil J. Ackerson
THE ACKERSON GROUP, CHARTERED
700 Thirteenth Street, N.W.
Suite 525
Washington, D.C. 20005-3960

For the Defendants: William P. Wooden
WOODEN, MCLAUGHLIN & STERNER
1600 Capital Center South
201 North Illinois Street
Indianapolis, IN 46204
and
Peter W. Morgan
DICKSTEIN, SHAPIRO, MORIN
& OSHINSKY, LLP
2101 L Street, N.W.
Washington, D.C. 20037-1526

Court Reporter: Kathleen Andrews, RPR
218 U.S. Courthouse
Indianapolis, IN 46204

PROCEEDINGS TAKEN BY MACHINE SHORTHAND
TRANSCRIPT PRODUCED BY COMPUTER-ASSISTED TRANSCRIPTION

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THE COURT: It's perhaps worth noting that over the last few weeks there have been some hearings in Congress over class actions and proposed legislation to divert all class actions in which there is even minimal diversity of citizenship into federal courts. That legislation has been prompted by some fairly outrageous examples of misuse of class actions and larger concerns, I guess, about other situations in which there is concern about collusive settlements and resolution of class actions that seemed to benefit lawyers more than the class. And I approach this case cognizant not only of that sort of public background, but also of the Court's obligation to be skeptical to act as a fiduciary to protect class members.

Against that background, despite my obligation to be skeptical, I cannot compliment counsel and the claims administrator in this case highly enough. This in my view is a model of what class action litigation ought to be, the way it ought to work. And in fact in this case, the overall degree of professionalism, dedication, creativity, and vigorous advocacy gives me great confidence in approving the settlement and the proposed fee awards.

And as I say, although it's my job to be as skeptical as I can be, and I've tried to approach the thing with the issues that way, you all have done a superb job in my view of

taking a vigorously contested national dispute and dispute within the state, approaching it in a way that it can be handled manageably and in a way that is imminently fair to the class, to the defendant, as well as to class counsel, who have done so much to create value for this class.

A few general comments. These are matters that will be addressed in more detail in writing, but let me just note that from the Court's perspective, the notice that was given to the prospective class in this case was adequate; it was clear; it was well administered in terms of handling inquiries and other problems. Counsel on both sides alluded to this, but what I think really is extraordinary about this case is the ability to give prospective class members such a clear idea of their approximate benefits under the settlement before they had to decide whether to opt in or opt out of the class. And I don't think I quite grasp yet how complicated that task was, the extraordinary efforts that the parties and their consultants through Price Waterhouse and appraisers went to to estimate those amounts. But it's hard to imagine -- I don't think that's necessary by any means in class actions, but it's hard to see how anybody could complain about the information that was available to them in making this decision to opt in or opt out of the class.

With respect to issues of final approval of the class certification, it is perfectly obvious that the proposed

settlement class in this case satisfies all the requirements of Rule 23(a). Numerosity is amply satisfied here with 1600-some odd claimants or parcels or potential class members, I should say. The requirements of commonality and typicality are easily met, and Ms. Hinshaw and the other named plaintiffs are clearly adequate representatives, as are their counsel.

With respect to criteria under Rule 23(b)(3) for purposes of the proposed settlement class here, common issues clearly predominate over any individual issues. In part the ability I think to make the kinds of estimates of value through some common methodologies help underscore the predominance of the common class issues over individual issues of valuation.

Often in damages class actions it's issues having to do with individual damages, particularly, let's say, if we are talking about personal injuries, that may make it very difficult to treat something as a class. Here, the issues are much simpler. The predominance is much simpler.

There is no question in my mind of the superiority of treating this case as a class action for settlement purposes. The prospects of litigating these issues parcel by parcel, plaintiff by plaintiff are, quickly become unmanageable. So the defined class is clearly appropriate for the settlement class.

I appreciate the parties' disagreement, or at least

reservation of rights with respect to whether the proposed class would be appropriate for litigation purposes, and it's my intention in my comments today not to express a definitive opinion on that issue one way or the other. If and when it ever becomes an issue, I'll decide it. I've got enough nonadvisory opinions and decisions I have to make not to measure into that one.

With respect to whether the proposed settlement is fair, reasonable, and adequate to the class, there are a number of factors I need to look at that the parties have identified in their briefs. First, of course, is the absence of delusion. That is well established here.

I would also, let me just note for the record the case in which we are operating today was essentially filed as a proposed settlement class action; but I recognize, and anybody evaluating this settlement needs to recognize that it is the last or at least the latest chapter after several years of vigorous litigation, and then approximately a year of adversarial arm's length negotiation over the terms of the settlement. That is probably the best assurance that a proposed settlement will be fair, reasonable, and adequate to the class.

With respect to the strength of the plaintiffs' case as compared with the terms of the settlement, it is not my intention to, and nobody should try to evaluate precisely the

strength of plaintiffs' claims at this stage if they were to be litigated. The whole purpose of this process is to short circuit that inquiry.

Suffice it to say for the present that the plaintiffs in this case are receiving substantial benefits under this class. They are receiving it in cash; not in, let's say, coupons for use of the defendant's products or some of the other kinds of techniques for settlement that have often drawn quite a bit of criticism. This is the real thing. The amounts are significant.

I'll simply say that at this point, given the vigor of the litigation prior to the settlement, it was clear that there were, that the capable counsel on both sides had good arguments on the merits, and I don't think I need to pursue that issue further.

With respect to the prospect of litigating these issues and comparing the results of the settlement to the alternative of litigation in terms of complexity, time, and expense, there is virtually no comparison. And that's why this settlement makes so much sense for everybody.

The degree of opposition to this proposed settlement is I believe as low as I have ever heard of in class action. Some of you who have practiced more widely in this area may have an exception or two in mind. I certainly haven't seen anything like this, and that further speaks volumes in

support of the settlement. The opinions of competent counsel on the adequacy of the settlement are in support of it, and I take those into account as well.

Looking at the stage of the proceedings and the extent of discovery completed as I mentioned a moment ago, this case is just the latest chapter, and there was ample exploration of the merits of the case and the relevant evidence.

I should also make it very clear that my approval of the adequacy of the settlement is based upon the cash benefits being paid to the class members without regard, without worrying about whether the proposed and quite creative corridor entity winds up turning a profit or not for class members.

I'll not make editorial comments about business process patents, but it's certainly, the creation of the proposed corridor entity is a very creative proposal for dealing with the unusual in essence network effects of, I believe the term the economists use to describe the value that's created by coordinating owners of, many land owners, just as telephone networks are more valuable the more members, the more lines there are, or computer networks are more valuable the more computers are connected.

We'll worry about the details of that later on, but I would at this point simply note my appreciation for the update on counsel's efforts to deal with, already with some

of those issues on the horizon, some of which I had seen when you all first talked with me about this, and some of which were beyond any imagination for this kind of entity. And we'll pursue those discussions in the future here, I'm sure.

With respect to the issue of the fee request, for these purposes I think it makes sense to look at this in essence as a request for approximately 25 percent of the total cash that AT&T has said it is willing to lay out in this case for the benefit, to be paid either to counsel or to class members given this size of a settlement fund, approximately a little more than $4 million or $4½ million. And in view of the years of effort and the risk on behalf of the plaintiffs, that counsel invested on behalf of the plaintiff class, I think the proposed fee is quite reasonable, and I will also approve the interim distribution once the final order is prepared here.

As I've mentioned, I will confirm these points in writing as well, but I wanted to address some of those points orally in the presence of everyone here.

And finally, let me just repeat once more the Court's compliments to counsel on both sides for the way this matter has been handled, and the Court's thanks also to the efforts of the claims administrator, Mr. Noland, and the team of people working with him to make this process work well.

Are there any other matters to be taken up this morning?

MR. PRICE: Nothing on behalf of the class, Your Honor.

MR. WOODEN: None, Your Honor. Thank you.

THE COURT: All right, then with that, I will enter judgment approving settlement and the fee award, interim fee distribution; and assuming suitable documents are available today to do that, those will be entered today. Court is adjourned.

(The Court adjourned at 10:15 a.m.)

I CERTIFY THAT THE FOREGOING IS A CORRECT TRANSCRIPT FROM THE RECORD OF THE PROCEEDINGS IN THE ABOVE MATTER.

_____ _____

KATHLEEN ANDREWS DATE

OFFICIAL COURT REPORTER

CALENDAR ITEM
C11

A 33

S 18

04/20/00
W 25493
J. Lien
B. Dugal

GENERAL LEASE - RIGHT OF WAY USE

APPLICANT:

PC Landing Corp
360 N. Crescent Drive
Attention: General Counsel
Beverly Hills, California 90210

AREA, LAND TYPE, AND LOCATION:

11 acres, more or less, of sovereign lands in the Pacific Ocean, near the city of Grover Beach, San Luis Obispo County.

AUTHORIZED USE:

The construction, installation, operation, maintenance and use of two 5.25-inch steel conduits and two fiber optic cables.

LEASE TERM:

Ten years, beginning April 20, 2000, with the right to renew for one additional period of 15 years, subject to such reasonable renewal terms and conditions as the State may impose.

CONSIDERATION:

$242,075 per year. The State may modify the method, amount or rate of consideration effective on the second anniversary of the beginning date of the Lease. Irrespective of whether the State exercises the right to modify the consideration on the second anniversary, it may do so on the fifth anniversary and subsequently thereafter. The above consideration is based on the estimated length of the cable that will be installed. Upon receipt and review of the as-built cable coordinates, the consideration will be modified based on the actual length of cable that is installed.

CALENDAR PAGE
MINUTE PAGE

EXHIBIT "B"
LAND DESCRIPTION

W 25493

Two parcels of tide and submerged land; being a ten (10) foot wide use area, five (5) feet along each side of the cable in the bed of the Pacific Ocean, adjacent to Pismo State Beach, San Luis Obispo County, California, more particularly described as follows:

Parcel 1 (Cable Route PC-1 East)

A 3.048 meter wide strip of land lying 1.524 meters on each side of the following described centerline:

Commencing from a point within the lands of Pismo State Beach (herein called "DEA-1") at 35°07'21.90000" North Latitude, 120°37'57.10000" West Longitude, North american Datum 1983 (NAD83), epoch 1991.35 and Universal Transverse Mercator, Zone 10 coordinate value, in meters, at North 3,889,220.28, East 715,733.75 (based on Global Position System observations collected on November 11, 1998 as constrained to the High Precision Geodetic Network at station "CA 05 05", PID: FV2048 with September 6th, 1994 National geodetic Survey, geodetic position value published at 35°05'03.22668", North Latitude, 120°35'03.12870" West Longitude, NAD83, epoch 1991.35 and Universal Transverse Mercator, Zone 10 coordinate value, in meters, at North 3,885,053.57, East 720,241.71);

Thence S 78°27'50" W, 311.23 meters, to the mean high water of the Pacific Ocean, being the **True Point of Beginning;**

Thence, across tide lands, S 78°27'50" W, 31.05 meters to mean low water;

Thence, across submerged lands of the Pacific Ocean, S 78°27'50" W, 1096.94 meters to 35°07'13.63" North Latitude, 120°38'53.03" West Longitude, NAD83, epoch 1991.35 and Universal Transverse Mercator, Zone 10 coordinate value, in meters, at North 3,888,932.46, East 714,323.60;

Thence continuing across submerged lands of the Pacific Ocean, S 73°52'00" W, 6,410 meters, plus or minus, to a point on the 3-mile offshore boundary and the end of said centerline.

Parcel 2 (Cable Route PC-1 South)

A 3.048 meter wide strip of land lying 1.524 meters on each side of the following described centerline:

Commencing from a point within the lands of Pismo State Beach (herein called "DEA-1") at 35°07'21.90000" North Latitude, 120°37'57.10000" West Longitude, North american Datum 1983 (NAD83), epoch 1991.35 and Universal Transverse Mercator, Zone 10 coordinate value, in meters, at North 3,889,220.28, East 715,733.75 (based on Global Position System observations collected on November 11, 1998 as constrained to the High Precision Geodetic Network at station "CA 05 05", PID: FV2048 with September 6th, 1994 National geodetic Survey, geodetic position value published at 35°05'03.22668",

CALENDAR ITEM
C10

A 33

S 18

04/20/00
W 25493
J. Lien
B. Dugal

GENERAL LEASE - RIGHT OF WAY USE

APPLICANT:

PAC Landing Corp
360 N. Crescent Drive
Attention: General Counsel
Beverly Hills, California 90210

AREA, LAND TYPE, AND LOCATION:

Five acres, more or less, of sovereign lands in the Pacific Ocean, near the city of Grover Beach, San Luis Obispo County.

AUTHORIZED USE:

The construction, installation, operation, maintenance and use of one 5.25-inch steel conduit and one fiber optic cable.

LEASE TERM:

Ten years, beginning April 20, 2000, with the right to renew for one additional period of 15 years, subject to such reasonable renewal terms and conditions as the State may impose.

CONSIDERATION:

$113,550 per year. The State may modify the method, amount, or rate of consideration effective on the second anniversary of the beginning date of the Lease. Irrespective of whether the State exercises the right to modify the consideration on the second anniversary, it may do so on the fifth anniversary and subsequently thereafter. The above consideration is based on the estimated length of the cable that will be installed. Upon receipt and review of the as-built cable coordinates, the consideration will be modified based on the actual length of cable that is installed.

CALENDAR PAGE
MINUTE PAGE

EXHIBIT "B"
LAND DESCRIPTION

W 25493

A parcel of tide and submerged land; being a ten (10) foot wide use area, five (5) feet along each side of the cable in the bed of the Pacific Ocean, adjacent to Pismo State Beach, San Luis Obispo County, California, more particularly described as follows:

Cable Route PAC

A 3.048 meter wide strip of land lying 1.524 meters on each side of the following described centerline:

Commencing from a point within the lands of Pismo State Beach (herein called "DEA-1") at 35°07'21.90000" North Latitude, 120°37'57.10000" West Longitude, North American Datum 1983 (NAD83), epoch 1991.35 and Universal Transverse Mercator, Zone 10 coordinate value, in meters, at North 3,889,220.28, East 715,733.75 (based on Global Position System observations collected on November 11, 1998 as constrained to the High Precision Geodetic Network at station "CA 05 05", PID: FV2048 with September 6th, 1994 National Geodetic Survey, geodetic position value published at 35°05'03.22668", North Latitude, 120°35'03.12870" West Longitude, NAD83, epoch 1991.35 and Universal Transverse Mercator, Zone 10 coordinate value, in meters, at North 3,885,053.57, East 720,241.71);

Thence S 74°47'57" W, 310.95 meters, to the mean high water of the Pacific Ocean, being the **True Point of Beginning;**

Thence, across tide lands, S 74°47'57" W, 32.03 meters to mean low water;

Thence, across submerged lands of the Pacific Ocean, S 74°47'57" W, 1096.15 meters to 35°07'10.71" North Latitude, 120°38'52.27" West Longitude, NAD83, epoch 1991.35 and Universal Transverse Mercator, Zone 10 coordinate value, in meters, at North 3,888,842.94, East 714,344.97;

Thence continuing across submerged lands of the Pacific Ocean, S 69°12'20" W, 5794 meters, plus or minus, to a point on the 3-mile offshore boundary and the end of said centerline.

Note: The basis of bearings for these descriptions is UTM grid, to convert to geodetic north, rotate counter clockwise, 1°21'45.4" at "DEA-1".

END DESCRIPTION

CALENDAR ITEM
C05

A 33

S 18

02/08/00
W 25495
B. Dugal

ONE PERMIT FOR TELEPHONE LINE RIGHT OF WAY AND FOUR GENERAL LEASES - NON-EXCLUSIVE RIGHT OF WAY USE

APPLICANT:

MFS Globenet, Inc.
6929 N. Lakewood Avenue
Tulsa, Oklahoma 74117

AREA, LAND TYPE, AND LOCATION:

Parcel 1 – 0.69 acres, more or less
Parcel 2 – 5.41 acres, more or less
Parcel 3 – 5.35 acres, more or less
Parcel 4 – 0.69 acres, more or less
Parcel 5 – 0.69 acres, more or less

All five parcels involve sovereign lands located in the Pacific Ocean, offshore of the community of Los Osos, San Luis Obispo County.

BACKGROUND INFORMATION:

The Applicant has applied for Rights-of-Ways to construct a fiber optic cable system that involves the construction of five conduits and placement of two fiber optic cables within two of the newly constructed conduits. One of the cable systems is referred to as "Southern Cross" and is identified as **Parcel 2.** The second cable system is referred to as "Japan-US" and is identified as **Parcel 3.** The empty conduits involve three parcels identified as **Parcels 1, 4, and 5.**

Pursuant to Public Utilities Code Section 7901 (PUC §7901), telephone corporations may construct and operate lines and equipment along and upon any public road, highway or the navigable waters of the State, without payment of compensation, provided the lines and facilities do not interfere with the public use. In order to qualify for the rent-free use of public lands under PUC §7901, an applicant must be authorized to provide telecommunication services within the

CALENDAR PAGE
MINUTE PAGE

indifferently to the public. Staff has determined that a rent-based lease is appropriate for the Applicant's Japan-US Cable - Segment 1.

Parcels 1, 4 and 5 – Empty Conduit
The Applicant's project also includes three empty conduits that are intended to accommodate fiber optic cable in the future. To date, these conduits have not been identified to an approved use, nor have they been dedicated to provide telecommunication services to the public. Therefore, staff has determined that a rent-based lease is appropriate for Parcels 1, 4, and 5.

SPECIFIC PERMIT TERMS FOR PARCEL 2

Authorized Use:
Installation (via directional boring) and maintenance of one six-inch diameter steel conduit and the placement of one fiber optic cable within the steel conduit. Based on the projected risk to the cable, several types of armored cable will be installed. Therefore, the size of the cable will vary from 1.2 inches to 1.10 inches in diameter.The fiber optic cable will carry diverse digital communications traffic including voice, data and video.

Permit Term:
Continuous use plus one year, commencing February 8, 2000.

Consideration:
No monetary consideration shall be charged for the placement, use, and maintenance of the conduit and fiber optic cable or other similar transmission devices placed by those qualifying under the scope of PUC §7901.

SPECIFIC LEASE TERMS FOR PARCEL 3

Authorized Use:
Installation (via directional boring) and maintenance of one six-inch diameter steel conduit and the placement of one fiber optic cable within the steel conduit. Based on the projected risk to the cable, several types of armored cable will be installed. Therefore, the size of the cable will vary from 1.2 inches to 1.10 inches in diameter. The fiber optic cable will carry diverse digital communications traffic including voice, data and video.

Lease Term: Ten years, commencing February 8, 2000, with the right to renew for one additional period of 15 years, subject to such reasonable renewal terms and conditions as the State may impose.

Consideration:

$116,361 per year. Lessor may modify the method, amount or rate of consideration effective on the second anniversary of the beginning date of the Lease. Irrespective of whether Lessor exercises the right to modify the consideration on the second anniversary, it may do so on the fifth anniversary and subsequently thereafter.

Insurance:
Combined single limit coverage no less than $1,000,000

Bond:
$500,000

SPECIFIC LEASE TERMS FOR PARCELS 1, 4, AND 5

Authorized Use for Each Lease:
Installation (via directional boring) and maintenance of one six-inch diameter steel conduit.

Lease Terms for Each Lease:
Ten years, beginning February 8, 2000, with the right to renew for one additional period of 15 years, subject to such reasonable renewal terms and conditions as the State may impose.

Consideration for Each Lease:
$15,093 per year. Lessor may modify the method, amount or rate of consideration effective on the second anniversary. Irrespective of whether Lessor exercises the right to modify the consideration on the second anniversary of the beginning date of the Lease, it may do so on the fifth anniversary and subsequently thereafter. The conduit Right-of-Way Leases each contain a provision whereby if, during the Lease term, Lessee becomes entitled to a rent-free permit pursuant to PUC §7901, the Lessee may apply to the Commission for and receive a rent-free Right-of-Way Permit in replacement of the affected conduit lease. However, this is contingent upon a finding by the Commission that the Lessee is entitled, pursuant to PUC §7901, to the rent-free use of the subject lands.

Insurance Provision for Each Lease:
Combined single limit coverage no less than $1,000,000

Bond Provision for Each Lease:
$75,000

Special Lease Provisions:
Applicant contemplates the future assignment of the conduit Right-of-Way Leases covering parcels 4 and 5 to AT&T Corp. Accordingly, Applicant has

CALENDAR ITEM
C13

A 33

S 18

04/20/00
PRC 7603
PRC 8144
W 25631
D. Gorfain
B. Dugal

GENERAL LEASE - RIGHT OF WAY USE,
AMENDMENT OF A GENERAL PERMIT AND
AMENDMENT OF A GENERAL LEASE

APPLICANT:
AT&T Corp
1200 Peachtree Street, N. E. Room PA 100
Atlanta, Georgia 30309

BACKGROUND INFORMATION:

Applicant:
On October 14, 1998, the California State Lands Commission (CSLC) received an application from AT&T Corp to install two fiber optic cables, which will become part of the China-U.S. Cable Network. The Applicant is a member of a multi-member consortium (the "Consortium") that will own the China-U.S. Cable Network. The members of the Consortium have entered into a private contractual agreement for the construction and maintenance of the cable system. Under the agreement, the Consortium will own the cable network and the Applicant is designated as the Terminal Party. In its capacity as Terminal Party, the Applicant is responsible for installing and maintaining the California segment and has requested the lease be issued exclusively in its name.

Project Overview:
The proposed China-U.S. Cable Network project involves laying two fiber optic cables on the seafloor off of Morro Bay, San Luis Obispo County. The two new cables constitute segments E1 and S7 of the China-U.S. Cable Network. The Applicant is seeking authorization from the CSLC to pull the two cables into an existing steel conduit previously permitted by the CSLC under Permit No. PRC 7603.

Based on the Environmental Impact Report (EIR) prepared for this project, the Applicant has elected to seek approval of the "Maximum Burial Alternative" identified in the EIR as the Environmentally Superior Alternative. In addition, the Applicant seeks approval of two "Implementation Options." These options are: the use of the cable laying vessel the MSV Seaspread instead of the MV American Patriot; and the "2 in 2 option" which would re-route a part of the E1

portion of the Applicant's cable routes across State lands authorizing the Applicant to lay the E1 and S7 cables up to and through Conduit #3. Further, to accommodate the Applicant's request for the "2 in 2 option," PRC 8144 (issued to MFS Globenet) would need to be amended to authorize the change in use and relocation of the E1 cable route into the PRC 8144 right of way.

AREA, LAND TYPE, AND LOCATION:

12 acres, more or less, of sovereign lands in the Pacific Ocean, located offshore and near the city of Morro Bay, San Luis Obispo County.

AUTHORIZED USE:

Use and maintenance of an existing 3.75-inch steel conduit and the installation of two 1.25-inch diameter fiber optic cables.

LEASE TERM:

Ten years, beginning April 20, 2000, with the right to renew for one additional period of 15 years, subject to such reasonable renewal terms and conditions as the State may impose.

CONSIDERATION:

$254,058 per year. The State may modify the method, amount, or rate of consideration effective on the second anniversary of the beginning date of the Lease. Irrespective of whether the State exercises the right to modify the consideration on the second anniversary, it may do so on the fifth anniversary and subsequently thereafter.

SPECIFIC LEASE PROVISIONS:

Insurance:

No less than $1,000,000 combined single limit coverage.

Bond:

$1,000,000

OTHER PERTINENT INFORMATION:

1) Applicant has the right to use the uplands adjoining the lease premises.

2) The proposed project involves the installation of two new fiber optic cables within the existing steel conduit permitted under PRC 7603. The two cables constitute segments E1 and S7 of the China-U.S. Cable Network and is proposed to serve the growing demand for telecommunication links to carry digital communication traffic between the United States, the People's Republic of China, and other Asian-Pacific Rim countries. Segments E1 and S7 will complete the China-U.S. Cable Network ring configuration that requires a cable landing to connect the system via the existing conduit to AT&T's previously permitted and constructed facilities

RE-89324

AGREEMENT No. CSX-7249

FIBER OPTIC CORRIDOR

BASIC AND OPERATING AGREEMENT

BETWEEN

CSX RAIL TRANSPORTATION UNITS

(Chessie System Railroads
Seaboard System Railroads)

AND

AT&T UNITS

DATED: MAY __/__, 1986

C[redacted]0026966

BASIC AND OPERATING AGREEMENT (DATED MAY / , 1986)

1. BASIC TERMS:

1.1 The Consideration for the grant of Lease set forth in Section 3.14 herein shall be $ 11,500 per mile for an estimated 20 miles of occupancy as shown on Exhibit "A". Actual miles shall be finally determined by Railroad from As-Built Drawings. AT&T shall pay to Railroad contemporaneously with the execution of this Agreement by AT&T a deposit of 10% of the total Consideration based upon the rate and mileage above. Upon receipt of this signed Agreement from Railroad, AT&T shall pay the balance of the estimated Consideration. Should Railroad fail to execute this Agreement, it shall return such deposit to AT&T within ten (10) working days, and neither party shall have liability to the other arising out of the proposed terms of this Agreement or any acts or omissions in reliance thereupon. Final accounting shall be made by Railroad on actual constructed miles within thirty (30) days of AT&T submission of As-Built Drawings.

1.2 The Lease or right to use Railroad's Right-of-Way shall be for an initial term of twenty-five (25) years with renewal for an additional term of twenty-five (25) years. Consideration for such renewal shall be the per mile unit rate in Section 1.1. plus 75% of the total increase (if any) of C.P.I. (or equivalent DOL or BLS table) between 1986 and 2010 (FYE 6/30).

1.3 As part of the consideration for the use of Railroad's Right-of-Way and the grant of the Lease, AT&T may be required to provide to and install for Railroad, at AT&T's sole cost and expense, a one and one quarter inch (1¼") nominal inside diameter corrugated PVC innerduct or of equivalent size and quality comparable to AT&T's. The innerduct shall be installed in prudent and workmanlike manner no later than when AT&T installs its Cable pursuant to this Agreement. AT&T makes no other warranties or guarantees of quality or of condition after placement. The innerduct shall be provided along the entire length of the Railroad Right-of-Way occupied by AT&T. Such installed innerduct shall be the sole property of Railroad, its successors, assigns or licensees, and any maintenance, repair, modification or removal thereof or liability therefor shall be the sole responsibility of Railroad, its successors, assigns by Railroad, or licensees.

Such innerduct ( ) is (X) is not required by Railroad on the subject Right-of-Way.

1.4 After execution hereof by both parties, AT&T, at AT&T's sole risk, cost and expense, will furnish all materials, and shall construct, maintain, use, change or remove AT&T Facilities or any part thereof in accordance with the design and specifications on approved plan(s) as in this Agreement provided, at a time and in a manner satisfactory to Railroad, all in a prudent and workmanlike manner, in conformity with any applicable statutes, orders, rules,